United States Court of Appeals for the Second Circuit

APPENDIX

77-1372

IN THE

United States Court of Appeals

FOR THE SECOND CIRCUIT

B
P/S

THE UNITED STATES OF AMERICA,
Plaintiff-Appellee,

VS.

FMC CORPORATION,
Defendant-Appellant.

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF NEW YORK.

JOINT APPENDIX

RICHARD J. ARCARA,
United States Attorney,
Western District of New York,
Attorney for Plaintiff-Appellee,
502 United States Courthouse,
Buffalo, New York 14202.

PHILLIPS, LYTLE, HITCHCOCK,
BLAINE & HUBER,
Attorneys for Defendant-Appellant,
3400 Marine Midland Center,
Buffalo, New York 14203.

UNITED STATES COURT OF APPEALS
FILED
OCT 11 1977
A. DANIEL FUSARO, CLERK
SECOND CIRCUIT

BATAVIA TIMES, APPELLATE COURT PRINTERS
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INDEX.

page

Docket Entries.. 1
Index of Papers and Exhibits for the Record on Appeal.. 5
Indictment.. 7
Defendant's Preliminary Requests to Charge.......... 10
Government's Request to Charge.......................... 11
Defendant's Additional Requests to Charge........... 13
Verdict.. 14
Judgment and Probation/Commitment Order............ 16
Notice of Appeal.. 17
Excerpts of Transcript of Proceedings, June 15, 1977.. 19
Index of Witnesses.. 20
Index of Exhibits.. 21
Transcript of Proceedings, June 27, 1977........... 72
Transcript of Proceedings, June 28, 1977........... 139
Transcript of Proceedings, June 29, 1977........... 298
Motions.. 328, 338
Requests to Charge.. 340
Transcript of Proceedings, July 1, 1977............ 346
Charge of the Court.. 346, 366
Exceptions.. 363
Requests.. 364
Stipulations.. 368
Note from Jury.. 369

TESTIMONY.

Witnesses for Government:

Lisenbee, Leonard

Direct Examination.......................... 25
Cross Examination.......................... 72

page

- Re-direct Examination........................ 87
- Re-cross Examination......................... 89

Harris, Earl J.

- Direct Examination........................... 90
- Cross Examination............................ 107
- Re-direct Examination........................ 117

Martin, Patrick P.

- Direct Examination........................... 119
- Cross Examination............................ 136

Duvall, Orrin

- Direct Examination........................... 139

Towns, Donald

- Direct Examination........................... 147, 157
- Preliminary Examination...................... 156
- Cross Examination............................ 169
- Re-direct Examination........................ 173

Cole, William C., Jr.

- Direct Examination........................... 175
- Cross Examination............................ 192
- Re-direct Examination........................ 224

Reilly, Edgar M.

- Direct Examination........................... 231
- Cross Examination............................ 240

Stone, Ward B.

- Direct Examination........................... 244
- Cross Examination............................ 298
- Re-direct Examination........................ 322

Witnesses for Defendant:

Antonucci, Julius

- Direct Examination........................... 330

Cole, William C., Jr.

- Direct Examination........................... 335
- Cross Examination............................ 337

page

EXHIBITS.

Government's Exhibits:

Exhibit 1--Topographical map of FMC Corporation. Received in evidence at page 32. Not Printed.

Exhibits 3-1--3-12--(Group Exhibit) Photographs of FMC holding lagoon. Received in evidence at page 35. Not Printed.

Exhibit 11--Letter of June 11, 1975 from William C. Cole reporting carbofuran analysis. Received in evidence at page 184. Printed at.. 371

Exhibit 12--List of pesticides processed at FMC - Middleport. Received in evidence at page 95. Not Printed.

Exhibit 15--Copy of letter from FMC to Nolan A. Curry, Chemical Systems Section, N.Y.S.D.E.C. Received in evidence at page . Printed at.. 372

Court's Exhibits: (Not Printed.)

Exhibit 3516--Copy of Earl Harris' "Report of Analysis" (of FMC birds). Received in evidence at page 104.

Exhibit 3543--Earl J. Harris' report of Anaylsis of 6-30-75. Received in evidence at page 104.

Exhibit 3548--Ward Stone's log. Received in evidence at page 261.

Exhibit 3549--Chart. Received in evidence at page 289.

PAGINATION AS IN ORIGINAL COPY

John T. Curtin

CRIMINAL DOCKET
UNITED STATES DISTRICT COURT

CR- 75 -172

Docket Entries.

D. C. Form No. 100 Rev.

TITLE OF CASE	ATTORNEYS
THE UNITED STATES	*For U.S.:*
vs.	Kenneth A. Cohen, AUSA
FMC CORPORATION	
Did unlawfully by means of toxic and noxious waters kill migratory birds, in violation of Title 16, U.S.C., Section 703	
	For Defendant: Mark/Hallembeck Phillips, Lytle, Hitchcock, Blaine & Huber Paul B. Zuydhoek, Esq. (of counsel)
Offenses: 4/23/75 - 6/25/75 36 Counts	

STATISTICAL RECORD	COSTS		DATE	NAME OR RECEIPT NO.	REC.	DISB.
J.S. 2 mailed AUG 5 1975	Clerk					
J.S. 3 mailed	Marshal					
Violation	Docket fee					
Title 16						
Sec. 703						

DATE 1975	PROCEEDINGS
July 30	Filed Indictment
July 30	J.S. 2 made
Aug. 5	Proceedings before the Magistrate - No appearance for deft. Mr. Zuydhoek requested adj. of the arraignment and it has been rescheduled 8/19/75
Aug. 19	Proceedings before the Magistrate— Atty, Mark Hallembeck appeared of cou for the Corp. Not guilty plea entered by Corp and request made for trial by jury. Discovery schedule set: Filing motions 9-7-75; Govts response 9-8-75; Argument 9-16-75 Deft to advise the Court on 9-16-75 whether it wants trial before the Magistrate or trial before a District Court Judge without jury. Pretrial conference will be scheduled in about a week
Sept. 2	Filed Deft's notice of motions for bill of particulars, suppression, disclosure, etc., ret. 9/16/75 - Magistrate
Sept. 10	Filed Government's answer to the Defendant's pre-trial motions
Sept. 9	Proceedings before the Magistrate- No appearance for deft.; Govt's response has not been filed, but argument is still scheduled 9/16/75
ept. 16	Proceedings before the Magistrate - Motion for suppression hearing denie withour prejudice to deft. renewing before trial court. Argument

Docket Entries.

DATE	PROCEEDINGS
1975	
	on motion for Bill of Particulars - resolved in part; decision rese paragraph 2(ii)/ Deft. to submit brief by 9-17-75; Govt. to respon by 9-26-75 Motion for jury trial withdrawn to be made before D.C Judge.
Sept. 24	Filed Magistrate's Order that the motions to suppress evidence and f a jury trial are reserved for renewal before Judge Curtin, up completion of all discovery; Govt. is to make certain disclo to deft., etc.--Maxwell, Mag.
Sept. 30	Proceedings before the Magistrate - Argument of motions has been Adj 10-10-75 by consent of the Attorneys.
Dec. 1	Filed order by Magistrate Maxwell.
1976	
Jan. 8	Pre-trial conference held in the above case. Adj. 3/2/76 for furthe pre-trial conference
Mar 2	Pre-trial conference. No pre-trial held. Adj. to 4/5/76 for status report.
Mar. 19	Filed Govt's bill of particulars
" 22	Filed cy. of letter dated 3/19/76 to Mr.Zuydhoek, from Kenneth A. Co AUSA, Sending Mr. Zuydhoek, a copy of the first suppl. bill of particulars of the U.S. relating to the indictment; also inform Mr. Zuydhoek the the Govt. has been granted until 4/12/76 to fi its memorandum of law relating to the issues of a jury trial an suppression of evidence --
Apr. 5	Filed deft's notice of motion for dismissal of the indictment on the grounds that the govt. will be unable to prove at trial that deft. was engaged in purposeful killing of birds as its burden under 16 U.S. Code Sect. 703.
Apr. 6	Filed deft's memorandum in support of motion to dismiss
Apr. 5	Status report. No appearance for deft. Govt. to file Bill of Particulars and brief
Apr. 26	Return date for briefs. Adj. to 5-10-76 for Govt. response.
May 10	Govt. response due. Adj. to 5-24-76 at Govt. request.
May 24	Govt. response due. to be filed today.
Aug. 19	Filed Order that the Government is ordered to file it's brief before 9/15/76 or this action shall be dismissed. Furthermore on that date the Government is ordered to show cause by explanation in writing why this action shold not be dismis for failure to file within the time previously set by the Court--CURTIN, J.
Sept. 15	Government brief due today. Court informed it will be filed today.
" 15	Filed affidavit by Kenneth Cohen, AUSA re reasons for delay in submit memorandum of law.
" 15	Filed Govt's memorandum of law
Oct. 8	Filed Deft's reply memorandum
Oct. 20	Deft's reply due. Submitted ✓ 3 10/20/76 G 30 days expiration
Dec. 21	Motion to dismiss the indictment. Motion denied. Motions to suppress etc. submitted. Trial 3-8-77. 3 11/18/76 G 30 days
1977	
Mar. 8	Govt. moves case ready for trial. Case is adj. by theCourt to be another date to be fixed because a motion is still unresolved theCourt.
Mar. 18	Filed Decision and Order deft's motion to dismiss Indictment is denied at this stage of the proceedings, etc.; The Court finds that th search of the lagoon and the seizure of the bird carcasses by state officials properly fall under the consent exception to th fourth amendment requirement of a search warrant as set out in

Docket Entries.

Sheet # 2

UNITED STATES DISTRICT COURT
CRIMINAL DOCKET U. S. vs FMC CORPORATION

Yr.	Docket No.	Def.
75	172	1

DATE	PROCEEDINGS (continued) (Document No.)	V. EXCLUDABLE DELAY (a) Interval (per Section II)	(b) Start Date / End Date	(c) Ltr. Code	(d) Total Days
3/18/77	Schneckloth. Defendant's additional requests for suppression of product lists and memoranda of statements made by defendant's employees are denied since no legal basis for their suppression has been demonstrated. Since no such constitutional vio. of the deft's fourth amendment rights has been found on the part of state officials in this case, the use of such evidence in a federal prosecution for a different purpose shall be allowed. Defendant's motion to dismiss the Indictment is denied, with a direction to the Govt. to prepare memorandum explaining the standard of conduct proscribed under the statute and explaining the burden placed upon the Government to prove its case; the motion to suppress is denied; and the motion for a jury trial is granted--CURTIN,J.				
3/25/77	Meeting scheduled but not held. Adj. 4/6/77				
4/6/77	Meeting held. Jury selection June 27. Court finds that this delay is in the public interest.	3	4/6/77 6/27/77	T	83
6/15/77	Govt. moves case ready for trial, whereupon, the jury is duly enpanelled. Trial is hereby adjourned until a time to be determined by the court.				
6/17/77	Filed Govt's Memorandum of Law.				
6/27/77	Trial continues fr June 15 w/same appearances & jury. Mr. Cohen opens for the govt. Mr. Zuydhoek opens for the deft. Witnesses for the Govt.: Leonard Lisenbee, Earl Harris, Patrick Paul Martin. Jury arrives at 9:30 am and leaves at 4:50 pm. Trial adjorned until tomorrow morning at 9:30 a.m.				
6/28/77	Trial continues fr yesterday w/same appearances & jury. Witnesses for the Govt.: Orrin Duvall, Donald Towne, William C. Cole, Jr., Edgar M. Reilly. Trial adj. until tomorrow morning at 9:30 a.m. Jury arrives at 10:30 am & leaves at 3:50 pm.				
6/29/77	Trial continues fr yesterday w/same appearances & jury. Witnesses for the Govt.: Ward Byron Stone. Govt. rests. Deft. moves for judgment of acquittal. Motion denied. Witnesses for the deft.: Julius Antonucci, William C. Cole, Jr., recalled. Deft. rests. Deft. renews motions.				

UNITED STATES DISTRICT COURT
CRIMINAL DOCKET

Docket Entries.

DATE 1977	PROCEEDINGS (continued) (Document No.)	V. EXCLUDABLE DELAY (a)	(b)	(c)	(d)
	Denied. Trial adj. until July 1 at 9;30 am. Jury arrived at 10:00 am and departed at 3:35 pm.				
7/1/77	Trial resumes fr June 29 w/the same appearances & jury, w/the exception that juror #10 arrived late & was replaced by alt. juror #1. Jury arrives at 9:50 am. Mr. Cohen sums up for the govt. Mr. Zuydhoek sums up for the deft. Mr. Cohen sums up in rebuttal for the Govt. After listening to a charge fr his honor the judge, the jury retires at 12:12 pm to deliberate upon their verdict. Jury taken to dinner at the expense of the govt. Jury returns at 2:35 pm for instructions. After instructions jury retires at 2:40 pm to further deliberate. The jury returns at 4:27 pm w/the following verdict: Guilty on cts. 3,4,5,7,9,10,11,12, 13,20,21,22,23,24,26,27,28,29; not guilty on cts. 1,2,6,8,14,15,16,17,18,19,25,30,31,32, 33,34,35 and 36. Sentence is deferred until August 10.				
7/1/77	Filed copy of Verdict, dtd 7/1/77.				
7/11/77	Filed Ct. Steno's minutes of Charge of the Court ~~proceedings of trial~~ before Curtin, J. on July 1, 1977.				
7/13/77	Filed Index to Govt's Memorandum of Law previously filed.				
8/10/77	Deft. is sentenced as follows: Deft. is fined $100.00 on each count of the indictment. The court remits the collection of the fine on all but 5 counts. The total amount of fine to be paid is $500.00. If there is an appeal, payment of the fine is stayed until the appeal is resolved.				
8/17/77	Filed deft.'s Notice of Appeal.				
8/23/77	Notice of Appeal, Fm. A, cy. of docket entries mailed to CCA.				
8/31/77	Filed Ct. Steno's minutes of proceedings of trial held before Curtin, J. commencing on June 15, 1977 (2 volumes).				
9/1/77	Filed Deft's Additional Requests to Charge.				
9/1/77	Filed Deft's Preliminary Requests to Charge.				
9/1/77	Filed Government's Request to Charge.				
9/6/77	Filed Judgment & Probation Ord. CURTIN, J.				
	CLOSED Appeal				
		Interval (per Section II)	Start Date End Date	Ltr. Code	Total Days

Index of Papers and Exhibits for the Record on Appeal.

UNITED STATES DISTRICT COURT

Western District of New York

UNITED STATES OF AMERICA,

vs.

FMC CORPORATION,

Defendant.

Criminal 75-172

---

1. Indictment.
2. Notice of Motions dated September 2, 1975.
3. Government's Answer to Pretrial Motions.
4. Bill of Particulars.
5. Notice of Motion dated April 5, 1976.
6. Decision of Court dated March 17, 1977.
7. Defendant's Preliminary Requests to Charge Numbered one thru five.
8. Government's Request to Charge.
9. Defendant's Additional Requests to Charge Numbered six thru eight.
10. Verdict.
11. Judgment.

Index of Papers and Exhibits for the Record on Appeal.

12. Notice of Appeal.

13. Transcript of Trial Commencing June 15, 1977 (pages 1-274).

14. Transcript of Trial Commencing June 29, 1977 (pages 275-472).

15. Transcript of Charge to Jury on July 1, 1977 (pages 1-31).

16. Government's Exhibit 1.

17. Government's Exhibit 11.

18. Government's Exhibit 12.

19. Government's Exhibit 13.

20. Government's Exhibit 15.

21. Government's Exhibit 3516.

22. Government's Exhibit 3543.

23. Government's Exhibit 3549.

Dated: Buffalo, New York,
September 6, 1977.

PHILLIPS, LYTLE, HITCHCOCK,
BLAINE & HUBER,
By: Paul B. Zuydhoek,
A Member of the Firm,
Attorneys for Defendant-Appellant.

DZ

IN THE DISTRICT COURT OF THE
UNITED STATES

For the Western District of New York

THE UNITED STATES OF AMERICA,

vs.

FMC CORPORATION.

March 1975 Session
No. 75-172
Vio. Title 16, United States
Code, Section 703

The Grand Jury Charges:

1. Commencing on or about April 23, 1975 and continuing until June 25, 1975, at exact dates and times unknown, in the City of Middleport, County of Niagara in the Western District of New York, FMC CORPORATION, without being permitted to do so by any regulation enacted, adopted and approved under the authority of the Migratory Bird Treaty Act of July 3, 1918, as amended, did unlawfully by means of toxic and noxious waters kill migratory birds included in the terms of the conventions between the United States of America and Great Britain for the protection of migratory birds concluded August 16, 1916, the United States and the United Mexican States for the protection of migratory birds and game mammals concluded February 7, 1936, and the United States and the Government of Japan for the protection of migratory birds and birds in danger of extinction and their environment

concluded March 4, 1972; all in violation of Title 16, United States Code, Section 703.

2. The allegations contained in paragraph 1 are realleged in Counts 1-36 together with the specifications hereinafter given:

Count	*Date of Discovery*	*Number*	*Migratory Birds*
1	April 23, 1975	Approximately 26	Canadian Geese (Branta canadensis)
2	April 23, 1975	Approximately 12	Migratory Ducks
3	April 25, 1975	1	Hooded Merganser (Lophodytes cucullatus)
4	April 25, 1975	1	Lesser Yellowlegs (Tringa flavipes)
5	April 25, 1975	1	Horned Lark (Eremophila alpestris)
6	On or about May 6, 1975	Approximately 7	Migratory Ducks
7	May 7, 1975	1	Canadian Goose (Branta canadensis)
8	May 7, 1975	1	Least Sandpiper (Calidris minutilla)
9	May 7, 1975	1	Oldsquaw Duck (Clangula hyemalis)
10	May 9, 1975	1	Ringbilled Gull (Larus delawarensis)
11	May 9, 1975	2	Least Sandpipers (Calidris minutilla)
12	May 9, 1975	1	Hooded Merganser (Lophodytes cucullatus)
13	May 9, 1975	1	Shortbilled Dowitcher (Limnodromus griseus)
14	May 15, 1975	1	Piedbilled Grebe (Podilymbus podiceps)
15	May 15, 1975	2	Least Sandpipers (Calidris minutilla)
16	May 15, 1975	1	Lesser Yellowlegs (Tringa flavipes)
17	May 15, 1975	1	Spotted Sandpiper (Actitis macularia)

Count	*Date of Discovery*	*Number*	*Migratory Birds*
18	May 19, 1975	2	Least Sandpipers (Calidris minutilla)
19	May 19, 1975	1	Semipalmated Plover (Charadrius semipalmatus)
20	May 23, 1975	1	Green Heron (Butorides virescens)
21	May 23, 1975	2	Semipalmated Plovers (Charadrius semipalmatus)
22	May 23, 1975	1	Spotted Sandpiper (Actitis macularia)
23	May 29, 1975	1	Gadwall Duck (Anas strepera)
24	May 29, 1975	1	Pintail Duck (Anas acuta)
25	May 29, 1975	1	Least Sandpiper (Calidris minutilla)
26	May 29, 1975	2	Semipalmated Plovers (Charadrius semipalmatus)
27	May 29, 1975	2	Spotted Sandpipers (Actitis macularia)
28	May 29, 1975	1	American Robin (Turdus migratorius)
29	June 9, 1975	2	Least Sandpipers (Calidris minutilla)
30	June 9, 1975	4	Semipalmated Sandpipers (Calidris pusillus)
31	June 9, 1975	1	Spotted Sandpiper (Actitis macularia)
32	June 25, 1975	5	Least Sandpipers (Calidris minutilla)
33	June 25, 1975	1	Swamp Sparrow (Melospiza georgiana)
34	June 25, 1975	1	Pintail Duck (Anas acuta)
35	June 25, 1975	1	Horned Lark (Eremophila alpestris)
36	June 25, 1975	1	Migratory Fringillid (Fringillidae)

RICHARD J. ARCARA,
Richard J. Arcara,
United States Attorney.

A TRUE BILL:

EARL R. DEWEY,
Foreman.

Defendant's Preliminary Requests to Charge.

(Same Title.)

Defendant, by its attorneys, Phillips, Lytle, Hitchcock, Blaine & Huber, pursuant to Rule 30 of the Federal Rules of Criminal Procedure, respectfully submits the following requests to charge the jury:

1. Before you may convict the defendant of killing birds in violation of the statute, you must also find that defendant intended to cause harm to the birds. The burden of proof is on the prosecution to show such intent.

2. In determining whether defendant acted with intent to harm birds, you may consider all of the facts admitted as evidence. You may consider what the defendant did and failed to do. Normally, a person intends all of the natural consequences of acts which he knowingly does or knowingly omits from doing. [Based on Mathes and Devitt, *Federal Jury Practice and Instructions, Civil and Criminal* (1965) § 10.06.]

3. If you find that the birds died as a result of an accident, you must acquit defendant.

4. Defendant is not on trial for any act or conduct not alleged in the indictment. [*Ibid.* § 14.05].

5. If you do find that defendant intended to harm birds and if the deaths followed as a result of such intent, then you may convict defendant. If you find that all of the bird deaths were caused by a single course of conduct, you may convict defendant of only one count of the indictment even though there are 36 separate counts. In ascertaining whether the course of conduct was a single one, you should consider whether the deaths arose from singleness of thought, purpose

or action which may be deemed a single impulse. [*United States vs. Universal C.I.T. Corp.*, 344 U.S. 218 (1952).]

PHILLIPS, LYTLE, HITCHCOCK,
BLAINE & HUBER,
By: Paul B. Zuydhoek,
A Member of the Firm,
Attorneys for Defendant,
3400 Marine Midland Center,
Buffalo, New York 14203.

DZ

Government's Request to Charge.

(Same Title.)

REQUEST NO. 1

Ladies and Gentlemen, Title 16, United States Code, Section 703 reads in relevant part:

> "it shall be unlawful at any time, by any means or in any manner to kill . . . any migratory bird."

Two essential elements are required to be proved in order to establish the offense charged in the indictment.

> FIRST: That the birds whose deaths are charged in the indictment are migratory birds.
>
> SECOND: That FMC Corporation killed the migratory birds as set forth in each count of the indictment.

The United States of America and FMC Corporation have agreed that the birds set forth in the indictment are migratory birds.

You are instructed that the United States of America does not have to prove that FMC Corporation intended to kill the migratory birds. You may convict FMC Corporation even if you find that the killing of the birds was accidental, negligent or unintentional provided you find that FMC Corporation did kill the birds as charged in the indictment.

Title 16, United States Code, Section 703.

REQUEST NO. 2

The statute prohibits the killing of any migratory bird. Counts 1, 2, 6, 11, 15, 18, 21, 27, 29, 30 and 32 of the indictment charge the killing of more than one migratory bird. In order to establish the offense charged in those counts, it is only necessary for the United States of America to prove that FMC Corporation killed just one of the migratory birds alleged in that count.

Title 16, United States Code, Section 703.

REQUEST NO. 3

During the course of the trial you have heard testimony concerning actions taken by FMC Corporation after June 25, 1975. That testimony was irrelevant and you are instructed as a matter of law to disregard it in your deliberations on the indictment.

Rule 402, Federal Rules of Evidence.

DATED: Buffalo, New York, June 29, 1977.

Respectfully submitted,

RICHARD J. ARCARA,
United States Attorney,
Western District of New York,
Office and Post Office Address,
502 United States Courthouse,
Buffalo, New York 14202.

Kenneth A. Cohen,
Assistant United States Attorney,
of Counsel.

Defendant's Additional Requests to Charge.

(Same Title.)

6. What the verdict shall be is the sole and exclusive duty and responsibility of the jury. [§ 15.14]

7. Even if you find defendant guilty of some counts of the Indictment, you need not find it guilty of others if you find that the deaths reflected in these other counts were not caused by defendant.

8. You may consider the evidence of remedial measures after the period of the indictment on the issue of whether such measures were feasible as precautionary steps prior to the time when birds were killed. [Federal Rules of Evidence, Rule 407].

PHILLIPS, LYTLE, HITCHCOCK,
BLAINE & HUBER,
By Paul B. Zuydhoek,
A Member of the Firm.

Verdict.

(Same Title.)

Filed
Jul 1 4:41 PM '77
U.S. District Court
W.D. of N.Y.

COUNT	*GUILTY*	*NOT GUILTY*
1	....	X
2	....	X
3	X	....
4	X	....
5	X	....
6	....	X
7	X	....
8	....	X
9	X	....
10	X	....
11	X	....
12	X	....
13	X	....
14	....	X
15	....	X
16	....	X
17	....	X
18	....	X
19	....	X
20	X	....
21	X	....
22	X	....
23	X	....
24	X	....
25	....	X

Verdict.

COUNT	*GUILTY*	*NOT GUILTY*
26	X	....
27	X	....
28	X	....
29	X	....
30	....	X
31	....	X
32	....	X
33	....	X
34	....	X
35	....	X
36	....	X

DAVID L. VALCLER,
Foreman.

DATED: July 1, 1977

16

Judgment and Probation/Commitment Order.

United States District Court for WESTERN DISTRICT OF NEW YORK

United States of America v.

DEFENDANT: FMC CORPORATION

DOCKET NO. CR. 75-172

JUDGMENT AND PROBATION/COMMITMENT ORDER

In the presence of the attorney for the government the defendant appeared in person on this date → MONTH DAY YEAR: August 10, 1977

COUNSEL

☐ WITHOUT COUNSEL However the court advised defendant of right to counsel and asked whether defendant desired to have counsel appointed by the court and the defendant thereupon waived assistance of counsel.

☒ WITH COUNSEL Paul Zuydhoek, Esq. (Name of counsel)

PLEA

☐ GUILTY, and the court being satisfied that there is a factual basis for the plea, ☐ NOLO CONTENDERE, ☐ NOT GUILTY

FINDING & JUDGMENT

There being a ~~XXXX~~ verdict of

☒ NOT GUILTY. ~~XXXXXXXXXXXXXX~~ Counts - 1,2,6,8,14, 15,16,17,18,19,25,30,31,32,33,34,35 and 36.

☒ GUILTY. Counts - 3,4,5,7,9,10,11,12,13,20,21, 22,23,24,26,27,28 and 29.

Defendant has been convicted as charged of the offense(s) of unlawfully by means of toxic and noxious waters kill migratory birds, in violation of Title 16, U.S.C., Section 703.

SENTENCE OR PROBATION ORDER

The court asked whether defendant had anything to say why judgment should not be pronounced. Because no sufficient cause to the contrary was shown, or appeared to the court, the court adjudged the defendant guilty as charged and convicted and ordered that: The defendant is hereby ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~ sentenced as follows: the defendant is fined $100.00 on each of the following Counts: 3,4,5,7,9,10,11,12,13,20,21,22,23,24,26,27, 28 and 29. I remit the collection of the fine on all but Counts 3,4,5,7 and 9. The total amount of fine to be paid is $500.00.

FILED
SEP 6 10 20 AM '77
U.S. DISTRICT COURT
W.D. OF N.Y.

SPECIAL CONDITIONS OF PROBATION

ADDITIONAL CONDITIONS OF PROBATION

In addition to the special conditions of probation imposed above, it is hereby ordered that the general conditions of probation set out on the reverse side of this judgment be imposed. The Court may change the conditions of probation, reduce or extend the period of probation, and at any time during the probation period or within a maximum probation period of five years permitted by law, may issue a warrant and revoke probation for a violation occurring during the probation period.

COMMITMENT RECOMMENDATION

The court orders commitment to the custody of the Attorney General and recommends,

It is ordered that the Clerk deliver a certified copy of this judgment and commitment to the U.S. Marshal or other qualified officer.

SIGNED BY
☒ U.S. District Judge

John T Curtin
JOHN T. CURTIN, U.S. District Judge

Date August 10, 1977

Notice of Appeal.

UNITED STATES DISTRICT COURT
Western District of New York

UNITED STATES OF AMERICA,

v.

FMC CORPORATION,

Defendant.

Docket Number Crim. 1975-172.

JOHN T. CURTIN
(District Court Judge)

Filed
AUG 17 12:54 PM '77
U.S. District Court
W.D. of N.Y.

Notice is hereby given that defendant FMC Corporation appeals to the United States Court of Appeals for the Second Circuit from the [x] Judgment ~~[ ] order [ ] other (specify)~~ .... entered in this action on (Date) August 10, 1977.

PHILLIPS, LYTLE, HITCHCOCK,
BLAINE & HUBER,
Paul B. Zuydhoek,
(Counsel for Appellant),
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Excerpts of Transcript of Proceedings, June 15, 1977.

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

* *

THE UNITED STATES

-v-

FMC CORPORATION,

Defendant.

CRIMINAL DOCKET
NO. 1975-172

* *

Proceedings of Trial held before the HON. JOHN T. CURTIN, United States District Judge in and for the Western District of New York, and a Jury, in Part I, United States Court House, Buffalo, New York, commencing on June 15, 1977.

APPEARANCES:

RICHARD J. ARCARA, United States Attorney, by KENNETH A. COHEN, Assistant United States Attorney.

PHILLIPS, LYTLE, HITCHCOCK, BLAINE & HUBER, Attorneys for the defendant, by PAUL B. ZUYDHOEK, Esq.; DAVID C. LANDGRAF, Esq., of Counsel.

INDEX OF WITNESSES

GOVERNMENT WITNESS:	DR.	CR.	RDR.	RCR.
LEONARD LISENBEE	27	80	95	97
EARL J. HARRIS	98	115	125	
PATRICK P. MARTIN	127	144		
ORRIN DUVALL	151			
DONALD TOWNS	159	181	185	
WILLIAM C. COLE, JR.	187	213	254	
EDGAR M. REILLY	261	270		
WARD B. STONE	278	337		

DEFENSE WITNESS:	**DR.**	**CR.**	**RDR.**	**RCR.**
JULIUS ANTONUCCI	**375**			
WILLIAM C. COLE, JR.	**379**	**381**		

INDEX OF EXHIBITS

GOVERNMENT EXHIBIT		IDEN.	EVID.
1	Topographical map of FMC Corporation	13	34
2	Sketch showing geography of FMC holding lagoon	13	
3	(Group Exhibit) Photographs of FMC holding lagoon	13	37
4	(Group Exhibit) Photographs of birds collected on 5-15-75	13	277
5	(Group Exhibit) Photographs of birds collected on 5-19-75	13	277
6	(Group Exhibit) Photographs of birds collected on 6-9-75	13	277
7	(Group Exhibit) Photographs of birds collected on 6-25-75	13	277
8	(Group Exhibit) Photographs of northeast corner of lagoon and birds not collected	13	368
9	Furadan Log Book, 5-25-75 - 7-6-75	13	
10	Furadan Log Book, 4-24-75 - 5-25-75	13	
11	Letter of June 11, 1975 from William C. Cole reporting carbofuran analysis results	13	205
12	List of pesticides processed at FMC - Middleport	13	
13	FMC's copy of permit to discharge under the National Pollutant Discharge Elimination System	13	
14	Copy of FMC's application to discharge into navigable waters	13	
15	Copy of letter from FMC to Nolan A. Curry, Chemical Systems Section, N.Y.S.D.E.C.	13	217

INDEX OF EXHIBITS (Cont'd)

GOVERNMENT EXHIBIT (Cont'd)		IDEN.	EVID.
16	Photograph of 3 bottles	13	
17	(Group Exhibit) Photographs of birds identified by Edgar Reilly	13	
18	(Group Exhibit) Photographs of birds collected 5-23-75	13	277
19	(Group Exhibit) Photographs of birds collected 5-29-75	13	277
20	(Group Exhibit) Photographs of other animals at the FMC lagoon	13	
21	Stipulation with respect to Counts 3,4, 5 of indictment	13	
22	Stipulation with respect to Counts 7,8,9 of indictment	13	
23	Stipulation with respect to Counts 10, 11, 12, 13 of indictment	13	
24	Stipulation with respect to Counts 14, 15, 17 of indictment	13	
25	Stipulation with respect to Count 16 of indictment	13	
26	Stipulation with respect to Counts 18, 19 of indictment	13	
27	Stipulation with respect to Counts 20, 21, 22 of indictment	13	
28	Stipulation with respect to Counts 23, 24, 25, 26, 27, 28 of indictment	13	
29	Stipulation with respect to Counts 29, 30, 31 of indictment	13	
30	Stipulation with respect to Counts 32, 33, 34, 35, 36 of indictment	13	

INDEX OF EXHIBITS (Cont'd)

COURT EXHIBIT (3500 Material)		IDEN.	EVID.
3500	Grand Jury testimony of Duvall, Orrin; FMC Employee	13	
3501	Grand Jury testimony of Towns, Donald; FMC Employee	13	
3502	Grand Jury testimony of Cole, William; FMC Employee	13	
3503	Grand Jury testimony of Martin, Patrick; NYSDEC	13	
3505	Grand Jury testimony of Harris, Earl J; NYSDEC	13	
3510	Grand Jury testimony, Stone, Ward B.	13	
3511	Grand Jury testimony, Lisenbee, Leonard E. (4 volumes)	13	
3513	Memo to Ken Cohen from W. Stone dated 7-8-75	13	
3514	Memo to Ken Cohen from Ward Stone (narrative of 5-29-75 trip) dated 7-14-75	13	
3516	Copy of Earl Harris' "Report of Analysis" (of FMC birds)	13	112
3528	Map by L. Lisenbee of lagoon and where 3 birds were found on 5-19-75	13	
3532	Four Maps of lagoon marked by Pat Martin, used in Grand Jury	13	
3534	One Map of lagoon marked by E. Harris, used in Grand Jury	13	
3536	Two Maps of lagoon marked by O. Duvall, used in Grand Jury	13	
3537	One Map of lagoon marked by L. Lisenbee, used in Grand Jury	13	
3538	L. Lisenbee's Investigation Report of 6-19-75	13	

INDEX OF EXHIBITS (Cont'd)

COURT EXHIBIT (3500 Material)		IDEN.	EVID.
3539	Voluntary statement by P. Martin (& R. Kriedman) on their experience with FMC	13	
3541	Leonard Lisenbee's notebook for 5-15-75, 5-23-75, 6-9-75, 6-12-75, 6-25-75	13	
3542	Patrick Martin's 1975 Yearbook	13	
3543	Earl J. Harris' report of Analysis of 6-30-75	13	112
3544	Dr. Edgar Reilly's report of 3-9-77	13	
3545	Memo from Ward Stone to John Cross dated 6-17-75	13	
3546	Report of experiments from Ward Stone	13	
3547	Study skins of migratory birds	13	
3548	Ward Stone's log	13	295
3549	Chart	13	328

* * *

LEONARD LISENBEE (Box 8, Manchester, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Lisenbee, what is your occupation?

A. I am a Special Agent with the United States Fish and Wildlife Service.

Q. How long have you been a Special Agent?

A. For three and a half years.

Q. How long have you been in the field of law enforcement?

A. For eight years.

Q. Where are you stationed?

A. I am stationed in Manchester, New York.

Q. How large is your territory?

A. My territory covers the entire western half of New York from the Thousand Islands region to the Binghamton area, a little bit east of Syracuse over to Buffalo.

Q. How many other agents were stationed in your territory during April, May and June 1975?

A. None other.

Q. Would you tell us what your duties are?

A. Yes, sir. My basic duties are to enforce certain of the acts passed by Congress that relate to international or interstate fish and game laws. A case in point would be the Migratory Bird Treaty Act and many others.

Q. Were you working on May 15, 1975?

A. Yes, sir, I was.

Q. Where were you working on that day?

A. In the Village of Middleport, New York.

Q. With whom were you?

A. I met with Conservation Officer Richard Lang of the New York State Department of Environmental Conservation.

Q. When did you meet him?

A. At about 7:00 a.m. in the morning.

Q. And where did the two of you go?

A. We walked to a position on the east side of the FMC Corporation plant and pond complex.

Q. Where would that be?

A. It would be north of Route 31 right next to the enclosing fence at the FMC pond.

Q. And would that be in Middleport, New York?

A. Yes, sir.

Q. What did you do there?

A. We set up a surveillance post during the morning to watch for bird [illegible]ersonnel activity around the FMC pond.

Q. What time did you establish the surveillance?

A. At about 7:10 a.m. on that date.

Q. Could you tell us what you observed, please?

A. Yes, sir. We observed several birds in or near the pond, including shore birds and morning doves and killdeer and we also observed other birds flying over the area.

Q. Do you recall what you observed some of these birds do?

A. Yes, sir. On one occasion I watched a killdeer that came from very near the edge of the water. It flew up to a small hummock of ground and started to shake itself. In a few seconds it started fluttering its wings and then it appeared to roll on its side and start kicking its legs. It then rolled completely out of our sight and fell over the hummock and we couldn't see it anymore.

Q. Did you observe any other species of birds?

A. Yes, sir. A short time after that Officer Lang and myself walked around northward toward the north bank of the pond and we observed a morning dove sitting right at the edge of the water sitting very still.

Q. What did you do?

A. We observed the bird for about thirty minutes. It sit there, did not move, any motion from that spot during that time. We thought it was probably dead but we couldn't tell.

Q. What did you do after you watched it?

A. We went back to get my camera with a telephoto lens to take a photo of it from that position. When we got back the bird was gone.

Q. Did you have any aids in your observation while you were in that surveillance post?

A. Yes, sir. We used binoculars and telephoto lenses on the camera.

Q. How long did you remain surveilling the lagoon?

A. Until 12:30. From 7:00 a.m. to 12:30.

Q. And what did you do at 12:30?

A. We departed the area. We went to a local restaurant where I made some phone calls to my supervisor in Albany and to Mr. Ken Cohen, yourself.

Q. And did there come another time that day when you returned to FMC?

A. Yes, sir. At 3:00 p.m. I entered the plant proper through the main gate, requested to interview the manager of the plant.

Q. Between, - at any time on the 15th, did you see an individual known as Patrick Martin?

A. No, sir, I did not see Mr. Martin at any time on the 15th.

Q. What happened when you requested to interview the plant manager?

A. I was shown into the office of Mr. Nelson Darroch. He was the acting plant manager on that date. Mr. William Cole, I was advised, was in Albany on business.

Q. Did you have a conversation with him?

A. Yes, I did.

Q. Could you tell us, please, what you said and what he said?

A. Yes, sir. I asked him if he was aware of a bird kill that occurred recently and was still occurring to the best of my knowledge at the FMC pond area. He stated that he was, that it had occurred about three weeks prior and then I asked him to explain the procedures of the plant, pumping procedures mainly, and he advised me that the water, most of the waters that went into the lagoon occurred from the waste water washings of the plant products and they were held in a small lagoon in the plant factory complex and then when that was full, pumped into the large pond on the east side of the plant. He also advised me that there were pesticides present in the water but he thought they were only in trace amounts. He did not know of any larger amounts. He advised me that the pond had been enlarged last year, last year being 1974, to hold more water and he also advised me during this period of time the pond was either empty or very near empty due to their pumping procedures into Jeddo Creek when there was high water in the creek.

Q. Did part of that conversation cover the specific pesticides produced by FMC Corporation?

A. Yes, sir. I asked him what pesticides were produced and he named off several including one with the brand name Furadan and the technical name carbofuran.

Q. Did you make any other requests of Mr. Darroch?

A. Yes, sir. On that day I requested a plot plan of the FMC plant and pond complex at Middleport preferably showing the pipelines on the map. He made a telephone call to some person and a few minutes later a Mr. Robert McIlheney entered his office carrying a map. Mr. McIlheney penciled in the lines showing the pipelines and then Mr. Darroch explained to me the pumping procedures in the plant.

Q. Before talking to Mr. Darroch on the 15th, what did you say to him to introduce the subject of your conversation?

A. Yes, sir. After entering his office, I introduced myself and showed him my badge and credentials and I advised him that I was there on an official investigation that could result in criminal prosecution. I advised him of his right to seek legal counsel and of his right not to answer any questions and I also advised him that he could require a search warrant prior to my inspecting the pond at any time. He made a phone call and advised me later that that was his counsel and his counsel had suggested that he cooperate completely.

Q. Let me show you, - did you say a map was produced before you?

A. Yes, sir, a plot map of FMC.

Q. Let me, - Mr. Lisenbee, let me show you Government's Exhibit Number 1. Do you recognize that exhibit?

A. Yes, sir, I do.

Q. How do you recognize it?

A. This is the plot map that was brought to Mr. Darroch's office and it shows the penciled in portions of the pipeline and I recognize the map from its general overall configuration.

MR. COHEN: Your Honor, I would like to move into evidence Government's Exhibit Number 1.

MR. ZUYDHOEK: No objection, your Honor.

THE COURT: No objection. It will be marked in evidence.

(Government Exhibit Number 1 received in evidence.)

BY MR. COHEN:

Q. Mr. Lisenbee, could you tack that up on the board, please. Mr. Lisenbee, could you point out to us, please, the lines that were penciled in for you and tell us what you were told with respect to those?

A. Yes, sir. These right here are the pipelines that were penciled in. Mr. Darroch explained that this pipeline here came from this holding lagoon by way of a small pump house here and this lagoon was the lagoon used for the waste waters from most of the plant here, pumped into here and then out by way of the pump house to the pond. This building right here is where the Furadan was produced and he advised me that they do not go through this lagoon. They go straight out and into the pond when their sump is full.

Q. Excuse me. Where is that now?

A. This building here is the Furadan production area located here on the east side of the plant complex and the pumping goes up and over to the pond. This is the big holding lagoon area, the ten-acre pond.

Q. And is that an accurate representation of the geographic boundaries of the pond as it was during May and June 1975?

A. No, sir. Mr. Darroch explained that the pond had undergone renovations to make it deeper and they had built a peninsula out this way hooking around to an island, what later turned out to be an island located about here and they built another peninsula out coming very close to this one but leaving an open space of land here and this area that was enclosed here was made rather deep to hold more water.

Q. Did there come a time when you went to the holding lagoon on May 15, 1975?

A. Yes, sir.

Q. And when was that?

A. At about 4:10 p.m. we went out from the office to the holding area.

Q. Who was with you at that time?

A. Conservation Officer Richard Lang, Mr. Darroch and Mr. McIlheney.

Q. Mr. Lisenbee, let me show you Government's Group Exhibit 3 for identification and specifically point out a sketch, Government Group Exhibit 3-A. Is that a representation of the geographic boundary of the FMC holding lagoon?

A. Yes, sir, it is.

Q. Is it drawn to scale?

A. No, sir.

Q. What is its purpose?

A. Strictly a means to put information down and have a reference point.

Q. In other words, it shows the general geographic outlines of the lagoon?

A. Yes, sir.

Q. Would it be helpful to you in your testimony?

A. Very helpful, yes, sir.

Q. Now, I notice, - let me draw your attention to Government Group Exhibits 1, 3-1, 3-2, and 3-3. What day were those photographs taken?

A. They were taken on May the 15th.

Q. Are they an accurate representation of the subjects depicted therein as the subjects appeared to you on May 15th, 1975?

A. Yes, sir, they are.

Q. Let me draw your attention to Government's Group Exhibit Number 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12. Are those photographs accurate representations of the subjects depicted therein as those subjects appeared to you on June 25, 1975?

A. Yes, sir, they are.

MR. COHEN: Your Honor, at this time I would like to move into evidence subject to connection Government's Group Exhibit

Number 3.

THE COURT: Mr. Zuydhoek, any objection?

MR. ZUYDHOEK: No objection with the stipulation it is subject to connection.

THE COURT: It will be marked in evidence. You may continue.

(Government Exhibits Numbered 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12 received in evidence.)

BY MR. COHEN:

Q. Mr. Lisenbee, could you show Government Exhibit Number 3 and tell us what these photographs represent?

A. Yes, sir. Could I possibly place it on the easel?

Q. Yes.

A. This drawing here represents the FMC lagoon as I saw it on the 15th of May and later. The photographs were taken in a --

Q. Excuse me, Mr. Lisenbee. Is it possible for you to bring that easel out here where the jury can see it.

A. Can you all see that okay? The photographs that you see here were taken by standing in one position and photographing so the photographs slightly overlap right around the pond. I was standing on the dike approximately here when I took them. This first photograph is facing due east right down the dike, the pond, and you can see part of the deep water area here and the dirt dike and this you will see a little bit better in this next photograph. I moved a little bit towards the north to take the second photograph and you can see part of the pond water, the mud bank here, and this portion right here is the peninsula here going out. You can also see the deep water area and you can just barely see some of the styrofoam floats in the area. The third photograph we are getting a little bit further around. You can see the edge of the island and the peninsula coming out and a little bit of the deep water area. By the way, there are woods on this side behind the pond over there and fallow fields.

Q. By "this side", do you mean the east side?

A. Yes, sir, the east side over here on the map. The fourth photograph here shows the island complete and the buildings in the background back here that you might see is an elementary school in this photograph. A little bit further around and you can see the edge of the island here, the north dike and part of the west dike here and again you can see buildings in the background. Those are not part of the plant complex. That is a high school and an elementary school located very near the pond.

This photograph here we are shifting around a little bit more to give you a little bit better picture of the pond dike, including the inflow pipe that happened to be in operation on that day bringing water from the plant into the pond and the building here is not part of the plant. That is the high school. As we shift so that we are facing this way, this photograph shows the beginning of the plant complex.

Q. By facing this way you mean --

A. At this angle here. In the distance you see the FMC plant and this portion of the dike here and the lagoon and part of the shore line that existed at the pond and the last photograph was taken due west and it shows the FMC plant proper with their different buildings and the dike that holds the water in there. This photograph here is a seepage area located right here.

MR. ZUYDHOEK: Your Honor, I think it would be more instructive if the witness refers to the numbers on the photographs.

THE WITNESS: Okay. Photograph Number 9 refers to a seepage area located right here.

BY MR. COHEN:

Q. Would that be the northwest corner?

A. Yes, sir. I was advised by Mr. Darroch that a woodchuck hole had caused a break in the dam, the dike, and water had flooded this area here and that's the result. There is nothing growing there. It is just plain dirt. Photographs 1, 2 and 3, the ones taken on the 15th of May, show the seepage area, two different views of it. That is located right here just on the outside of the pond on the down side of the dike. Water from the pond is seeping through the dike on the bedrock and coming out forming a small swamp here and everything that is in the swamp you can see is dead. This is Conservation Officer Richard Lang pointing to the dead stuff in the swamp in the seep area itself and this last photograph Number 3 was taken on the 15th of May and it shows this northeast corner right here and these objects you see here, - I believe there is five of them, - are carcasses of dead birds that were too decomposed to collect.

Q. Mr. Lisenbee, is the lagoon area enclosed in any way?

A. Yes, sir. There is a chain link fence. I am not sure on the height, six or seven feet topped off with barbed wire around the pond just outside the dike with a gate here.

Q. Do any of the photographs, - you mentioned photographs of the seepage area. Where is the seepage area with respect to the chain link fence?

A. It is outside the chain link fence. You can see the fence here in this photograph with the barbed wire and this is outside the plant fenced in area. The high school grounds, right here, and then there is a railroad track and then the seepage area begins. There is no other barriers.

Q. Did you walk around the lagoon area and examine the ence?

A. Yes, sir, I did.

Q. And what was the condition of the fence on May 15, 1975?

A. On that day as I walked on the outside of the fence over here, I noticed a small hole, a hole big enough for a dog.

Q. By "over here", what geographic corner?

A. The northeast corner on the north side right in here. There was a hole in the fence big enough for a dog or a child to crawl through and over here there was a rent in the fence in the northwest corner that a person could walk through.

Q. When you set up your surveillance that morning, could you show us approximately where you were?

A. Yes, sir. We were located approximately here during the entire morning. We walked northward along the east side of the fence and down the north side of the fence in a westerly direction to observe everything. We were mainly looking for any birds that we might see through the fence on the property. We did see a couple located here.

Q. Could you show us where the killdeer was that you observed and told us about earlier?

A. Okay. The killdeer that flew up on the hummock of ground flew up on this hummock here. As we were positioned right here we observed it and then after it had fluttered its wings and kicked, it went on this side out of our view. We couldn't see it. It is a hump of ground.

Q. Could you tell us where the morning dove was?

A. Yes, sir. The morning dove was up here in the northeast corner sitting right here next to the water.

Q. When you returned in the afternoon, were you able to find the killdeer?

A. No, sir. We did not find the killdeer.

Q. Did you find the morning dove?

A. No, sir, we did not find the morning dove.

Q. Could you tell us what you did at the lagoon on the 15th?

A. Yes, sir. Conservation Officer Lang and myself proceeded to walk the boundary of the lagoon along the dike looking for birds that were dead or injured, sick, that we might observe on the water's edge or on the pond.

Q. Did you observe any?

A. Yes, sir.

Q. How many did you observe?

A. Well, the carcasses that we observed were too numerous to count. We collected four freshly-killed birds on that date.

Q. Did you have your camera with you at that time?

A. Yes, sir.

Q. Did you take a picture of them?

A. Yes, sir, I did.

Q. Let me show you Government's Exhibit Number 4. Is Government's Exhibit Number 4-1, 4-2, 4-3, 4-4, is that group exhibit an accurate representation of the subjects depicted therein as they appeared to you on May 15, 1975?

A. Yes, sir, it is.

* * *

BY MR. COHEN:

Q. Mr. Lisenbee, with respect to Government's Exhibit Number 4, would you tell us, please, - tell us the number of the photographs and what it represents?

A. Yes, sir. Photograph Number 1 represents a pied-billed grebe that I found near the edge of the deep water section of the lagoon. Photograph Number 2 represents a spotted sandpiper that I found and collected from off of the island. Photograph Number 3 represents a Least sandpiper that I found floating in the water mostly submerged near the section of the dike that runs east-west into the lagoon, and Photograph Number 4 came from the same section of land. It represents a Least sandpiper that I found and collected on that east-west spit of land.

Q. Did you personally collect and pick up those birds on the 15th?

A. No, sir.

Q. What did you do with respect to those birds?

A. With those birds I photographed them and marked them for recovery later. I had the understanding that a gentleman from Delmar would be there to assist and collect them and keep down the chain of custody.

Q. Who was that individual?

A. Mr. George Teidman.

Q. Did there come a time on the 15th of May that you saw George Teidman?

A. Yes, sir. At ten minutes after 5:00 on that day Mr. Teidman arrived with his assistant from Delmar. I showed him the locations of the birds. He also photographed them and collected them, placed them in plastic bags and marking them with the location where they were found, what was in the bag, the specie of bird, the date and the time.

THE COURT: Mr. Lisenbee, what is Delmar?

THE WITNESS: Delmar Laboratory, your Honor, is near Albany. It is the main research laboratory for the New York State Department of Environmental Conservation.

THE COURT: I see, and he is an employee of the laboratory?

THE WITNESS: Yes, sir.

THE COURT: Which is an agency of the State of New York?

THE WITNESS: Yes, sir.

BY MR. COHEN:

Q. Do you know his title?

A. He is the Chief Wildlife Inspector for New York State.

THE COURT: Mr. Cohen, as I understand it, you have stipulated to the chain of custody?

MR. COHEN: Yes, your Honor.

THE COURT: So we do not have to have the testimony about it.

MR. COHEN: That is correct, your Honor.

THE COURT: All we are concerned with here is simply the identification of photographs.

MR. COHEN: Correct.

THE COURT: Can we simply go into that?

BY MR.COHEN:

Q. Yes, sir. What else did you observe Mr. Teidman do at the lagoon?

A. Mr. Teidman collected four water samples in my presence on that date.

Q. What time did you leave the lagoon on May 15, 1975?

A. About 6:00 p.m.

Q. Directing your attention to May 16, 1975, did there come a time that day when you were also at the FMC plant at Middleport, New York?

A. Yes, sir, there was.

Q. When was that?

A. About 10:00 a.m. in the morning.

Q. Was anyone with you on that day?

A. No, sir, I came alone.

Q. Could you tell us what you did?

A. Yes, sir. I went to the office of Mr. William Cole and requested an interview.

Q. And did you see Mr. Cole?

A. Yes, sir. I was shown into his office. There was another gentleman present, Mr. Donald Towns, and I interviewed both of them on the same time.

Q. Would you tell us what Mr. Cole said and what you said?

THE COURT: Excuse me. Who are these gentlemen?

THE WITNESS: Well, Mr. William Cole is the plant manager of the FMC Corporation, Middleport.

THE COURT: He was not there the day before?

THE WITNESS: No, sir. He was in Albany on business and Mr. Donald Towns, I believe, was the plant technical manager on that date.

BY MR. COHEN:

Q. What plant?

A. FMC, Middleport. Mr. Cole stated essentially the same answers that Mr. Darroch had stated. He advises me that the waste waters mainly originated from the dithiocarbamate processes at the plant and he stated that pesticides could be in the pond water but only in trace amounts. He advises me that to the best of his knowledge there was only two times that birds were killed, big kills as compared to an occasional bird found every now and then. These were about three weeks prior to date of interview and ten days prior to date of interview which was the 16th. I asked him if he knew what chemicals could have possibly killed birds and he advised me that possibly ammonia or zinc were the agents responsible.

Q. Did you ask him any other questions with respect to that subject matter?

A. Not to my knowledge, no, sir.

Q. Would you tell us what Mr. Towns said and what you said, please?

A. Yes, sir. Mr. Towns advised me that he was possibly the first person to see dead birds at the pond, that he had observed five dead birds, approximate, on or around April the 23rd. He went to Mr. Julius Antonucci, the plant shipping and receiving manager, and asked Mr. Antonucci who was also in charge of grounds keepers to have one of them go out to the pond and pick up the dead birds that he found. Mr. Towns stated that Mr. Orrin Duvall was the grounds keeper assigned to the job and that Mr. Duvall had reported back as picking up twenty-six Canada Geese and twelve ducks on the first time and on the second date about ten days after the first pickup Mr. Duvall reported picking up an additional six ducks.

Q. Did you have any conversation with Mr. Towns with respect to the subject of carbofuran on the 16th?

A. No, sir, I can't remember. Mr. Towns did state those were the only two times to the best of his knowledge that plant personnel had actually gone out and picked up dead birds.

Q. And you also interviewed Mr. Duvall?

A. Yes, sir.

Q. Directing your attention to May 19th, - excuse me, on the 16th of May did you go out to the holding lagoon in search of dead birds?

A. No, sir.

Q. What did you do after you interviewed Mr. Cole, Mr. Towns and Mr. Duvall?

A. After finishing the interview with Mr. Duvall, I exited the plant proper.

Q. What time did you leave?

A. I believe it was around noontime.

Q. Directing your attention to May 19, 1975, did there come a time when you went back to FMC on that date?

A. Yes, sir, I did.

Q. When was that?

A. In the early a.m.

Q. Were you with anyone?

A. No, sir. I went alone on that date.

Q. What did you do?

A. I entered the gate and requested to see Mr. Cole to get permission to go and inspect the pond. He granted the permission and advised me that Mr. Louis Dent would meet me at the pond gate to allow me entrance or accompany me and I met Mr. Dent and together we walked around the edges of the pond and out on the spits of land and the island that are in the pond.

Q. What did you see?

A. I saw three freshly-killed dead birds.

Q. Where did you see those birds?

A. Two of them came off of the spit that goes east-west into the pond from the east dike, and the third one I believe came off of the northwest, - correction, the north-south. It goes off the south dike.

Q. Let me show you Government's Group Exhibit Number 5, 5-1, 5-2, 5-3. Is that an accurate representation of the subjects photographed therein as they appeared to you on May 19, 1975?

A. Yes, sir, it is.

Q. Could you tell us what these photographs represent, please?

A. Yes, sir. 5-1 represents a Least sandpiper we observed right at the edge of the pond water. Photograph Number 2 represents a Least sandpiper that we observed and collected from the same general area, the east-west spit of land. We had to pick up bird number two. The way it was laying in the water it was mostly hidden in the glare of the sun and the hand holding it belongs to Mr. Dent. Photograph Number 3 is a semipalmated plover that we found laying on beach very near the water on the north-south spit of land.

MR. COHEN: Your Honor, for the record I am going to move to introduce Government's Exhibit Number 5 into evidence.

THE COURT: Reserve decision on all the photographs.

BY MR. COHEN:

Q. Let me draw your attention once more to Government's Exhibit Number 5 and specifically Number 5-1. Could you tell us, please, whose footprints are in that photograph?

A. No, sir, I cannot. When I left the pond on the 15th --

THE COURT: Excuse me, Mr. Cohen. Really does it matter? They would not be Robinson Crusoe's, I suppose, or Friday's. I can't see how footprints make any difference at all. Let us go on to something else.

MR. COHEN: Your Honor, may I approach the bench?

(Side bar discussion had off the record between Court and counsel.)

THE COURT: I will adhere to my ruling. I see no reason to get into footprints.

BY MR. COHEN:

Q. Could you tell us what you did with the birds that you collected on the 19th?

A. Yes, sir. I placed them in plastic bags, labeled them and transported them to Montezuma National Wildlife Refuge and placed them in the law enforcement freezer and locked them up.

Q. And after that what did you do with them?

A. On the 22nd I picked up the birds, transported them to Rochester, purchased some dry ice and packaged them up in a box and shipped them by way of Eastern Airlines Signature Service to Texas, - or to Baltimore, Maryland, where they were picked up by --

MR. ZUYDHOEK: Your Honor, this is all subject to a stipulation.

THE COURT: This is all in the stipulation, Mr. Cohen. Let us continue with the photographs. I think briefly you can say maybe to connect it with the stipulation whatever was done in the beginning, but as to the end result about going to Baltimore and going to Albany, I do not think that is necessary.

BY MR. COHEN:

Q. Thank you, your Honor. What time did you leave the lagoon on the 19th, do you recall?

A. No, sir, not exactly. It was around noontime.

Q. Let me direct your attention to May 23, 1975. Did there come a time on that date when you were at the FMC facility in Middleport, New York?

A. Yes, sir.

Q. And when was that?

A. About 10:00 a.m. in the morning, I believe.

Q. Was anyone with you on that day?

A. I met with Mr. Louis Dent again and we again observed the pond together. No other persons came with me.

Q. Could you tell us what you observed at the pond?

A. Yes, sir. On that date I observed and collected four more migratory birds.

Q. Let me show you Government's Group Exhibit Number 18 consisting of five photographs, 18-1, 18-2, 18-3, 18-4 and 18-5. Is that an accurate representation of the subjects depicted therein as they appeared to you on May 23, 1975?

A. Yes, sir, it is.

Q. Were the subjects as red as it appears in that photograph?

A. No, sir. Evidently the film had been exposed to heat in the automobile causing it to turn slightly reddish.

Q. Would you tell us what these photographs represent, please?

A. Yes, sir. Those are the four dead birds that we collected and the fifth picture, 18-5 is a group photo of the four birds together.

Q. Will you tell us what they are, please?

A. Yes, sir. Photo Number 18-1 is, I believe a spotted sandpiper. At the time of collection I wasn't sure. Photograph 18-2 in the lower left is a photograph of a semipalmated plover being collected by Mr. Dent. Photograph Number 18-3 in the upper right-hand corner is also a semipalmated plover collected on the same date and Photograph 18-4 is a green heron that we collected on that date.

Q. Do Photographs 1, 3 and 4 represent the birds in the position that they were when you discovered them?

A. Yes, sir, they do.

Q. And what about Photograph Number 2?

A. In Photograph Number 2 the bird had become submerged in the water and to get an accurate representation, we had to lift it out of the water to photograph.

Q. What about Photograph Number 5?

A. On Photograph Number 5, a group photograph, we placed them on the white plastic bag that would hold the four individual plastic bags for photographing to get a contrast with the background.

MR. COHEN: Again, your Honor, for the record I move in evidence these exhibits.

THE COURT: You do not have to. We know that you do in each case. In those other three photographs, the background there, is that the shore, Mr. Lisenbee?

THE WITNESS: Yes, sir, that is the shore area of the pond.

THE COURT: The shore area of the pond, all right. Mr. Cohen, please put that down. Let us go on to the next one.

BY MR. COHEN:

Q. Could you tell us basically what time you left the lagoon on the 23rd?

A. Around noontime.

Q. And what did you do with the birds?

A. I transported the birds to an exit on the New York Thruway near Syracuse and turned them over to Mr. Bruce Weber.

Q. Do you know who he was?

A. Yes, sir. He is known to me as an employee of the

Delmar Laboratory in Dr. Stone's office.

Q. Let me direct your attention to May 29, 1975. Did there come a time when you went to the FMC plant on that date?

A. Yes, sir.

Q. When was that?

A. In the a.m., mid-morning hours.

Q. Who did you meet at the plant?

A. My supervisor came from Albany and met me at my headquarters and together we went to the plant where we met with Mr. Larry Moriarity, an assistant of his.

Q. Who is Mr. Moriarity?

A. He is with the Environmental Protection Agency. Dr. Ward Stone and his assistant from the Delmar Laboratories, New York Department of Environmental Conservation and yourself, Mr. Ken Cohen.

Q. What did you do on May 29, 1975?

A. After stopping in at the plant management office and getting permission to go to the pond, we went out to the pond area and looked for dead birds. Mr. Cole and Mr. Darroch accompanied us on that date.

Q. What did you see at the lagoon on that date?

A. Sir, on that date we saw numerous freshly-killed dead birds and animals. We collected a total of eight birds on that date.

Q. Let me show you Government's Group Exhibit Number 19 consisting of nine photographs, Government's Exhibits 19-1 through 19-9. Are the subjects depicted in those photographs accurate representations of the subjects as they appeared to you on May 29, 1975?

A. Yes, sir, they are.

Q. Okay. Could you go through the photographs, please, and tell us what they represent?

A. Yes, sir. Photograph Number 1 represents a Least sandpiper that we observed and collected on that date. Photograph Number 2 shows two ducks, one gadwall and one pintail, I believe.

Q. Are those ducks in Photograph Number 2 in the exact position as they were when you found them?

A. No, sir, they are not. They were moved together so that we could photograph them. Photograph Number 3 shows, I believe, a semipalmated plover we found on that day. Photograph Number 4 I believe is a Least sandpiper. Number 5 shows a shore bird of some type. I am not sure on the identification. It was identified completely at Delmar. Photograph Number 6 shows a robin being held in Dr. Stone's hand. Photograph Number 7 --

Q. Excuse me. How did the robin [illegible] to be shown in Dr. Stone's hand?

A. Well, when we arrived at the pond, Dr. Stone was walking the shore and he observed the robin near the shore area and it appeared to be in distress. He picked it up and as he was holding it in his hand before Agent Krost and myself could get to him to photograph it, it died in his hand.

Q. What does Photograph Number 7 show?

A. That shows a sandpiper being held in Dr. Stone's hand also.

Q. Did you observe the collection of the sandpipers depicted in Photograph 19-7?

A. No,sir. At the time I was on another portion of the pond. However, I was advised by Dr. Stone --

MR. ZUYDHOEK: Your Honor --

BY MR. COHEN:

Q. Mr. Lisenbee, Mr. Stone will be called as a witness.

A. Okay. Sorry.

THE COURT: Go ahead.

BY MR. COHEN:

Q. Could you tell us, please, what Government Exhibit Number 8 represents?

A. Yes, sir. Government Exhibit 8 in the photograph represents a group picture of the eight birds, plus two voles that we collected on that date.

Q. What is a vole?

A. It is very similar to a field mouse. It is a rodent that lives in fallow fields and in the wild.

Q. Could you tell us, please, what Government's Exhibit Number 9 represents?

A. Yes, sir, that is a photograph of part of Dr. Stone's body, his hands holding a vole and several birds collected on that date, including the robin and a Least sandpiper among others.

MR. COHEN: Thank you.

THE COURT: Could I see that a minute, Mr. Cohen? The robin is not one of the birds charged here.

MR. COHEN: Yes, it is, your Honor.

THE COURT: It is covered, you claim, by the Treaty?

MR. COHEN: Yes, your Honor.

THE WITNESS: Oh, yes, your Honor.

THE COURT: All right. I will defer ruling as I did the others. Go ahead, continue.

BY MR. COHEN:

Q. When did you leave FMC on May 29, 1975?

A. About 1:00 p.m.

Q. Let me direct your attention now to June 9, 1975. Did there come a time on that day when you went to the FMC plant?

A. Yes, sir, I did.

Q. Do you recall when that was?

A. Yes, sir, that was around 9:00 a.m. in the morning.

Q. Was anyone there with you?

A. Yes, sir. Miss Strucek, Cynthia Strucek of the New York State Department of Environmental Conservation went with me on that date.

Q. And who was her supervisor on May, - in May of 1975?

A. Dr. Ward Stone.

Q. Excuse me, June, 1975.

A. Dr. Stone.

Q. Would you tell us what you did at FMC that day?

A. Yes, sir. Again we walked to the shore line of the pond and we checked for fresh killed migratory birds. We found a total of seven on that date.

Q. Let me show you Government's Exhibit Number 6 consisting of photographs 6-1 through 6-5.

A. Yes, sir.

Q. Are those photographs an accurate representation of the subject depicted therein as it appeared to you on June 9, 1975?

A. Yes, sir, it is.

Q. Would you tell us what that represents?

A. The five photographs represent five of the seven birds we collected on that date.

Q. Could you go over each photograph and tell us which birds they are?

A. Yes, sir. Photograph Number 6-1 is a Least sandpiper floating in the water. Photograph 6-2 is a Least sandpiper laying near the shore. 6-3 is a Least sandpiper laying in about an inch of water in the shallows of the pond. 6-4 is a Least sandpiper laying in some dead grass in the edge of the pond and 6-5 is a Least sandpiper out about fifteen or sixteen feet from the shore and lying in the water.

Q. Do you recall what the birds are that weren't depicted in these photographs?

A. There was one Least sandpiper that the photograph didn't come out on and the other was, I believe, a shore bird or, excuse me, a song bird of some type.

Q. But you can't recall?

A. No, sir, I can't recall just what it was.

Q. What did you do with the birds on that day?

A. Those birds were collected and labeled by myself and photographed, of course, before collection and they were turned over to Mrs. Strucek for transportation to her supervisor, Dr. Stone.

Q. About what time did you leave the lagoon on that day?

A. About 1:00 p.m. again.

Q. Now, let me direct your attention to June 12, 1975. Were you at FMC on that date?

A. Yes, sir, I was.

Q. Was anyone with you?

A. Yes, sir. Mr. Cole walked around the pond with me.

Q. Could you tell us what you did on that date?

A. Yes, sir. We walked around the pond looking for freshly-killed migratory birds.

Q. Did you find any?

A. No, sir. I noticed, however, that the water level of the pond had risen to some extent, six or seven inches which in effect cut out all of the attractive shore areas of the pond, took away all of the attraction that existed.

Q. Was it, - where did it meet the embankment, at what line?

A. Very near the base of the dike in all situations. Mr. Cole advised me that due to the heavy rains they had experienced during the last couple of days and to the lack of pumping out of the pond into Jeddo Creek by the plant that the water level had risen in this manner.

Q. Let me direct your attention now to June 25, 1975. Were you at the FMC holding lagoon on that date?

A. Yes, sir, I was.

Q. What time did you arrive?

A. We arrived around 9:00, 9:30.

Q. Who was there with you?

A. I met with Mr. Patrick Nixon and Mr. Larry Moriarity of the Environmental Protection Agency and that was in Rochester and we went together to the FMC holding pond and when we got there I found Mrs. Strucek was waiting for us at the pond area.

Q. Did anyone from FMC accompany you to the pond area?

A. I believe so but I can't remember, sir.

Q. What did you see when you arrived at the pond area on June 25th?

A. Well, we again walked the shore line of the pond looking for dead birds, freshly-killed dead birds, and we found a total of nine dead birds on that date.

Q. Did you see anybody else at the pond when you arrived?

A. Yes, sir. There was a person sitting in his automobile at the southwest corner of the pond.

Q. Did you observe the individual in the automobile?

A. Yes, sir. The gentleman appeared to be asleep or resting his head back.

Q. And did you identify yourself to this individual?

A. Yes, sir. I walked to the vehicle and I introduced myself and he introduced himself to me as Mr. John Stipple, a Globe Security Guard.

Q. Did he have any equipment with him on June 25th?

A. Yes, sir. He had a single barrel Stevens shotgun that he stated was used to fire cracker shells and scare the birds away from the pond.

Q. Did you find any dead birds on June 25, 1975?

A. Yes, sir, a total of nine migratory birds.

Q. How close, - could you show us on the map, please, where Mr. Stipple was?

A. Yes, sir. Mr. Stipple was parked right about here in his vehicle, his privately-owned vehicle. The first three birds that we found on that date were found here, here and here.

Q. That would be on the dike extending --

A. Yes, sir.

Q. Northward from the south shore?

A. Yes, sir.

Q. How close in feet would you estimate the birds that you found were to Mr. Stipple?

A. Well, the closest was about seventy-five feet and the furthest possibly one hundred fifteen feet from him.

Q. Let me show you Government's Exhibit Number 7. Government's Group Exhibit 7 consists of photographs marked 7-1 through 7-8. Are the subjects depicted in those photographs accurate representations of them as they appeared to you on June 25, 1975?

A. Yes, sir, they are.

Q. Would you tell us what each picture represents, please?

A. Yes, sir. These are pictures of eight of the nine birds we collected on that date. Photograph Number 1 is a song bird of some type. Photograph Number 2, I believe, was identified as a swamp sparrow. Photograph Number 3 is a Least sandpiper lying at the edge of the water. Photograph Number 4 is also a Least sandpiper laying in the water. Photograph Number 5 is also a Least sandpiper laying in the edge of the water near some dead grass. Photograph Number 6 is a photograph of a Least sandpiper underneath one of the styrofoam floats that is lying up on the shore. Photograph Number 7 is a song bird of some type. I am not sure of the exact species and photograph Number 8 is a Least sandpiper lying in the shallow water.

Q. How many birds did you collect on the 25th?

A. We collected nine.

Q. Okay, and what was the bird not depicted in the photographs?

A. That was a pintailed duck that the photograph didn't' come out.

Q. Did you have a conversation with Mr. Stipple that day?

A. Yes,sir. I asked him essentially what he was doing there. He advised me that FMC had contracted with Globe Security to hire two men seven days a week, one to be there from about sunup to 1:30 in the afternoon and the other guard to be there from 1:30 to sundown. He also advised me after I collected the birds, - I asked him --

MR. ZWYDHOEK: Your Honor, I really don't believe that Mr. Stipple can make admissions on behalf of FMC.

THE COURT: Sustain the objection to whatever Mr. Stipple said.

BY MR. COHEN:

Q. What did you do with the birds that you collected on June 25th of 1975?

A. Those birds were turned over to Miss Strucek along with water samples that Mr. Nixon had collected for her for transportation to Delmar.

Q. Mr. Lisenbee, in your various trips to FMC Corporation between May 15, 1975 and June 25, 1975, did you have any conversations with any of the plant personnel concerning protective measures they could take to alleviate the killing of birds at the lagoon?

A. Yes,sir, I did. On several occasions Mr. Cole asked me about measures that he could take at the pond.

Q. With respect to your first visit on May 15th did you observe the pond on that day?

A. Yes, sir.

Q. What did you observe on the pond on that day?

A. The styrofoam floats were the only thing around the pond that possibly could scare birds.

Q. Let me show you Government's Exhibit Number 3 and point specifically to 3-8 and 3-7 and 3-6, 3-10, 11 and 12. Are those floats depicted in those photographs?

A. Yes, sir, they are.

MR. COHEN: Your Honor, may I ask that these be passed around to the jury at this time, please.

THE COURT: All right. That may be done.

JUROR NO. 1: What number picture are the floats supposed to be?

THE WITNESS: They are in several, the white dots.

THE COURT: This is a photo showing the lagoon taken by Mr. Lisenbee when he turned his camera at various angles. Mr. Cohen, do you want to continue, please.

BY MR. COHEN:

Q. Mr. Lisenbee, when was the first conversation you had with someone from the plant regarding measures they could take to prevent the killing of migratory birds?

A. On May the 16th, your Honor.

Q. I am sorry, Mr. Lisenbee, I am not the judge. Who did you talk to on May the 16th?

A. Mr. William Cole from the FMC plant.

Q. Could you tell us the substance of that conversation, please?

A. Yes, sir. He requested various methods that could be used to scare birds. I suggested such things as the Zon guns, the propane cannons used by orchard growers to scare birds from their orchards; cracker shells and I believe I did supply him with a box of cracker shells at that time or shortly thereafter.

Q. Can you tell us what a cracker shell is?

A. Yes, sir. That is a 12 gauge shotgun shell that when it is fired out of a shotgun, makes a small pop upon ignition and a very loud bang at about sixty to eighty yards in distance out. It is used mainly to scare birds off runways or other areas where they will fly before you get there, but they can be used very effectively.

Q. When you returned to the pond on May 19th, did you see any of these measures initiated?

A. Well, sir, I can't remember if the Zon guns were in place on the 19th or the 23rd, but, yes, they did go out and buy Zon guns shortly after I suggested them.

Q. Do you remember how many Zon guns there were?

A. Yes, there were two total.

Q. And where were they on the day that you recall seeing them?

A. The first time I saw them they were located on the island and on the west dike and pointing essentially towards each other. They were later moved so that both of them were pointing east from the west dike and I understand they had to be toned down in volume due to complaints from the neighbors.

Q. Were you able to determine what effect these Zon guns had on the killing of birds or, excuse me, I meant in scaring away birds?

A. From my experience, not too much. We did find many dead birds after they were put in place.

Q. Did you find any other of your suggestions initiated by FMC Corporation on your other visits?

A. Yes, sir. On the 25th Mr. John Stipple, the guard, did have cracker shells. He was using them. The Zon guns were still working, still going off at regular intervals of about a minute or two minutes each. Later in July they put up Avalarms.

Q. Do you recall when in July?

A. Not exactly, but it was about the middle of July they put up Avalarms and they also started to net the pond.

Q. Mr. Lisenbee, did you collect every dead bird that you found?

A. No, sir, I did not.

Q. Why not?

MR. ZUYDHOEK: Objection, your Honor. I think it is irrelevant with respect to birds that are not charged in the indictment.

THE COURT: I will overrule the objection.

THE WITNESS: Mr. Cohen, there were many carcasses or parts of carcasses that we couldn't collect. They were either too decomposed or they wouldn't be good for analysis.

BY MR. COHEN:

Q. Let me show you Government's Exhibit Number 8 which is a group exhibit of photographs labeled Government Exhibits 8-1 through 8-15. Are the subjects depicted in that photograph, - in those photographs accurate representations of them as they appeared to you at the time that you observed them?

A. Yes, sir, they are.

Q. Would you tell us what these photographs represent, please?

A. They represent the carcasses of birds that we observed but didn't collect due to their advanced decomposure.

Q. And specifically with the photographs?

A. Yes, sir. Photograph Number 1 shows Conservation Officer Richard Lang and Mr. Robert McIlheney in the northeast corner of the pond and Mr. Lang, Officer Lang is pointing at the carcasses of some dead birds in that corner that seem to have been washed up there. Photograph Number 2 shows a little clearer version of the same shot, a little closer, and you can see the carcasses of some Canada geese in that location. Photograph Number 3 is a decomposed carcass of a Canada goose. Photograph Number 4 is a decomposed carcass of a mallard duck. Photograph Number 5 is the decomposed carcass of a Canada goose, another Canada goose. Photograph Number 6 is portions of a migratory duck that were in the water's edge very decomposed. Number 7 is the wing tip and sternum section of a Canada goose that were found on the dike near a woodchuck hole. Photograph Number 8 is a mallard duck that was very decomposed, - correction, an unknown duck. Photograph Number 9 is a photograph of carcasses located in the edge of the water in the northeast corner of the pond. Photograph Number 10 is a killdeer located in the dead grasses off the island. Photograph Number 11 is a song bird of some type located on the bank of the pond near the northeast corner. Photograph Number 12 is a very decomposed portion of an unknown duck. 13 is an unknown song bird of some type floating in the dead grasses in the edge of the water. Photograph Number 14 is portions of a dead Canada goose that we found on the dike on the back side near a woodchuck hole and photograph Number 15 is a mallard duck in a very decomposed condition. It was taken off the island, I believe.

Q. Thank you, Mr. Lisenbee. Mr. Lisenbee, did you ever observe any other type of dead animals at the lagoon other than birds?

MR. ZUYDHOEK: Objection, your Honor. Completely irrelevant.

THE COURT: I will sustain the objection.

BY MR. COHEN:

Q. Mr. Lisenbee, could you tell us how far the lagoon is located from the Iroquois National Wildlife Refuge?

A. Yes, sir. It is about seven or eight air miles.

* * *

PROCEEDINGS: June 27, 1977, 2:35 p.m.

APPEARANCES: As before noted.

LEONARD LISENBEE, a witness called by and in behalf of the Government, having been previously duly sworn, resumed the witness stand and testified further as follows:

DIRECT EXAMINATION BY MR. COHEN: (Resumed)

THE COURT: All right, Mr. Cohen. Do you want to continue, please. The jury is here.

BY MR. COHEN:

Q. Thank you, your Honor. Mr. Lisenbee, of the birds you collected at FMC Corporation from May 15th through June 25, 1975, how many of those were protected under the Migratory Bird Treaty Act?

A. All of them, sir.

MR. COHEN: Your Honor, that completes my questioning of Mr. Lisenbee.

THE COURT: You may begin, Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. Mr. Lisenbee, how do you know that all of those birds that you have collected were migratory?

A. Sir, under the definition of the Migratory Bird Treaty Act and the regulations pursuant to that treaty and the act by Congress, a list was made listing birds that the Secretary of the Interior felt were migratory in nature. Maybe not each individual species would migrate, but the species in general would migrate and that list included all of the birds we collected at FMC.

Q. So as I understand it, the Secretary of Interior makes a list and those on the list are the protected species?

A. Yes, sir.

Q. Whether or not they migrate?

A. Yes, sir.

Q. And in fact some of the birds on that list don't migrate?

A. The species?

Q. Yes.

A. No, sir. Some members of every species on that list migrate.

Q. All right. Would that include the blue jay?

MR. COHEN: Your Honor, I would object. There is nothing in the indictment which charges the death of a blue jay.

THE COURT: Mr. Lisenbee, is that on the list?

THE WITNESS: Yes, sir, it is on the list.

THE COURT: I will overrule the objection.

THE WITNESS: To the best of my knowledge blue jays migrate just like all other migratory birds.

BY MR. ZUYDHOEK:

Q. Is a crow on the migratory bird list?

A. Yes, sir, it is.

Q. How about a buzzard?

A. Yes, sir, it is.

Q. When was the last time you were at the FMC premises?

A. The last time, - last Monday afternoon.

Q. And did you look in the area of the lagoon?

A. Yes, sir, I did.

Q. What did you see?

A. I saw that the lagoon had been graded over.

Q. Dried up and graded over?

A. I don't know whether it dried up before it was graded, sir. All I could see was that it was graded.

Q. Okay. Were you ever refused access to the FMC premises?

A. No, sir, I was not.

Q. Did anyone you interviewed from FMC ever refuse to answer any question?

A. No, sir.

Q. The first time that you went out to those premises I think you said you spent the morning outside the fence?

A. Yes, sir, that's correct.

Q. Did you advise anyone from FMC that you were outside the fence?

A. Not at that time, no, sir.

Q. What were you doing there at that time? What was the purpose of staying outside the fence?

A. It was reported to me on the 14th by telephone conversation --

THE COURT: Excuse me. You tell us what you were doing there outside the fence. Do not tell us about telephone reports or any other reports that you received.

THE WITNESS: Yes, sir. I was watching for bird activity and plant personnel activity around the pond.

BY MR. ZUYDHOEK:

Q. Did you observe any plant personnel around the pond?

A. Not at that time, no, sir.

Q. How long were you there, how many hours?

A. About five.

Q. You also testified to certain devices that FMC put out in the area of the pond. What were the devices that you suggested to be employed?

A. Sir, I suggested the Zon guns, the shotguns shooting cracker shells or blanks and the Avalarms. I also suggested the netting. That would be the last solution I gave.

THE COURT: Excuse me, Mr. Zuydhoek. Before you proceed further, why don't I take up, - unavoidably Mr. Williams could not be here because he was before Judge Elfvin, but he is here now. Are you ready to proceed, Mr. Williams?

MR. WILLIAMS: Yes, your Honor.

THE COURT: Ladies and gentlemen, this will not take too long, I do not think. Are there any witnesses in the corridor? Why not step into the corridor for a few minutes and be comfortable. Mr. Lisenbee, if you desire you may take a break.

(Recess taken at 2:41 p.m.)

* * * * * * *

PROCEEDINGS: After recess, 3:05 p.m.

APPEARANCES: As before noted.

(Jury present.)

LEONARD LISENBEE, a witness called by and in behalf of the Government, having been previously duly sworn, resumed the witness stand and testified further as follows:

CROSS EXAMINATION BY MR. ZUYDHOEK: (Resumed)

THE COURT: Thank you, ladies and gentlemen. It was important we take up those things this afternoon when everyone was here. If we then set it for another time, it is a great inconvenience to them. Mr. Zuydhoek, go ahead.

BY MR. ZUYDHOEK:

Q. Thank you, Judge. Mr. Lisenbee, maybe we can handle this in a different way. What birds are not on the migratory bird list?

A. Okay, sir. The four birds that are not on the Migratory Bird Treaty Act list of 50 CFR 10 are the starling. That is the English starling, the house sparrow or English sparrow, the monk parakeet and the common or farrow pigeon. All other birds except the gallinaceous game birds of the state such as the pheasant, the quail, the gros, the turkey, all other birds are protected by Federal Law.

Q. Now, in connection with the sparrow, you mention that the house sparrow is not protected. How many sparrows other than the house sparrow exist?

A. I have no idea but there are a great number.

Q. Were any of the birds collected by you house sparrows?

A. No, sir. I saw no English sparrows or house sparrows at the pond site.

Q. Did you see any sparrows at all?

A. Yes, sir. Birds that I could not identify at the time that later turned out to be sparrows.

Q. That was identification by some other person than yourself?

A. Yes, sir.

Q. Now, I think we have just mentioned before we adjourned momentarily the items that you suggested to alleviate some of the bird deaths that were occurring at the pond and the four items were the Zon guns, the shot guns with cracker shells, Avalarms and the nets. Now, these were suggestions that you made to the FMC people?

A. At one time or another, yes, sir.

Q. Were there any other suggestions that you made to the FMC people, any other items?

A. Other than I suggested at one point putting somebody out there from the plant to patrol. I wasn't thinking in terms of a guard or security agency.

Q. And the Zon gun that you mentioned, there were two of those?

A. Yes, sir.

Q. Were you able to give the FMC people any detail about how the Zon gun worked?

A. Sketchy, but yes, sir.

Q. Did you tell them where they would be available for purchase?

A. Yes, sir.

Q. Did you have any knowledge of their commercial availability?

A. Only that Agway stores and a few other retail farm equipment dealers carry them.

Q. What is the normal use for a Zon gun?

A. Scaring birds and deer and other depretating animals from crop fields or from crops.

Q. Now, I think you mentioned on your direct testimony, and the way you characterized it was from your experience the Zon guns were not very effective. What did you mean by that?

A. Sir, the Zon guns, - I did not say the Zon guns would not be very effective. In other instances the Zon guns had been very effective in scaring birds.

Q. So what you meant then, let's be fair, what you meant was that from your experience at the FMC Company that Zon guns were not?

A. In that case, yes, sir.

Q. Okay. Now, the cracker shells that they used in the shotguns, you mentioned that you made some of those cracker shells available yourself?

A. Yes, sir.

Q. Are they commercially available, the cracker shells?

A. Yes, sir, they are.

Q. You just go out and buy them in the store?

A. No. You have got to probably order them through one of the few dealers in the country, but they are available.

Q. Did you tell the people at FMC where they could get the cracker shells?

A. Yes, sir.

Q. And where was that?

A. I believe it was someplace in Michigan. The factory itself, I believe, is located in Colorado.

Q. Now, the Avalarms, and that is A-v-a-l-a-r-m-s --

A. A-v dash a-l-a-r-m-s.

Q. The "A-v" stands for something to do with birds, right, "A-v"?

A. Yes, sir, aviary.

Q. All right. Was anybody at the FMC plant familiar with Avalarms when you mentioned it?

A. I don't recall, sir. I don't have any knowledge. I talked with Mr. Cole only.

Q. Did you tell Mr. Cole where the Avalarms could be obtained?

A. I don't believe I was too specific on where Avalarms could be obtained because I had never known anybody here to use them except down in Chautauqua County for the berry fields.

Q. For the berry fields?

A. Blueberries, yes, sir.

Q. What do they use the Avalarms for down there?

A. Scare birds.

Q. Keep them away from berries. How does the Avalarm work?

A. The amplifying device makes a loud high-pitched distress call by electronic means simulating distress calls by other birds and it causes the other birds to be repelled from that area.

Q. How many Avalarms were purchased by the FMC people?

A. To the best of my knowledge, I saw four there in July. Not during the period we previously talked about.

Q. You also mentioned a net?

A. Yes, sir.

Q. When did you suggest a net to the FMC people?

A. I don't remember the exact date, but that was one of the suggestions I made, something to close the pond off.

Q. The idea would be to keep the birds away from the water?

A. Yes, sir.

Q. And had you had any previous experience with netting ten-acre ponds?

A. No, sir, none whatsoever.

Q. Any previous experience in netting any pond?

A. No, sir.

Q. Were you aware of the availability, the commercial availability of nets for ponds?

A. For ponds?

Q. Right.

A. No, sir.

Q. Did you make any suggestions as to where the nets could be obtained?

A. I don't believe so, no.

Q. Was there in fact some sort of net erected over this ten-acre pond?

A. Yes, sir, I saw netting erected over the pond.

Q. Did you suggest anything that FMC did not try?

A. Not to my knowledge, sir.

Q. Did you collect any live birds?

A. Yes, sir, I did.

Q. What were done with the live birds?

A. Sir, in July I collected a Least sandpiper that was very, very sick. It was just barely alive in my hands. I took it to the main plant section and washed it off and then I placed it on the bottom of a screen wire cage in the back seat of my car where it was very warm and I observed for thirty minutes there at the pond and it appeared to be getting better. I then, after I finished my other business at the pond, I took that bird to Iroquois National Wildlife Refuge where I released it in the presence of two witnesses who work at the refuge and it appeared to be very healthy when it took off.

Q. Did you mark it in any way?

A. No, sir, I did not mark it in any way.

Q. But as far as you could tell, the bird recovered?

A. Yes, sir.

Q. And that's the only time that you know anything about collecting live birds at the pond, that one instance?

A. Will you repeat that question?

Q. I am sorry. Do you have any personal knowledge of any other collection of live birds at the FMC plant?

A. No, sir. No birds were taken from the FMC plant alive.

Q. Except for that one?

A. Except for that one.

Q. Now, when you first went on the premises on May 15th, I believe you mentioned you had a conversation with a

Mr. Darroch?

A. Yes, sir, Nelson Darroch.

Q. And that is D-a-r-r-o-c-h?

A. To the best of my knowledge, yes.

Q. Did you question Mr. Darroch with respect to previous bird kills?

A. Yes, sir, I did.

Q. And what did he tell you?

MR. COHEN: Objection, your Honor. The indictment does not cover events prior to May 15th, - April 23rd.

THE COURT: I will overrule the objection.

THE WITNESS: Mr. Darroch advised me, sir, that he was aware of two previous bird kills.

BY MR. ZUYDHOEK:

Q. Prior to May 15th?

A. Prior to the May 15th interview, yes, sir, the first occurring on or about April 23rd. He wasn't sure of the dates, and the second one occurring about ten days previous to the interview, again May the 6th, roughly. He wasn't sure.

Q. And both of those bird kills are referenced in the indictment, are they not?

A. Yes, sir, they are.

Q. And that's the extent of Mr. Darroch's knowledge as he related it to you?

A. Well, I asked him many questions.

Q. I am sorry, knowledge with respect to previous bird kills.

A. Yes, sir, that's what he stated.

Q. Now, you also said you had a conversation with Mr. Cole during which you interviewed certain other FMC employees?

A. Yes.

Q. And one of those employees was Mr. Duvall?

A. Yes, sir.

Q. And you interviewed Mr. Duvall, for example, in Mr. Cole's presence?

A. Yes, sir, and Mr. Towns.

Q. While you were there did Mr. Cole give any instructions to Mr. Towns or to Mr. Duvall?

A. Yes,sir, he did. He instructed Mr. Duvall to answer any and all questions that I might ask him as truthfully as possible.

Q. Did Mr. Cole tell you anything about pesticides being in the lagoon?

A. I don't recall. I don't believe so. I think he might have mentioned trace amounts.

Q. Do you recall, - well, maybe I can refresh your recollection.

THE COURT: While Mr. Zuydhoek is looking, Mr. Fronk, do you want to step up.

(Side bar conference had between Court and counsel in another matter.)

THE COURT: Mr. Zuydhoek, when you are ready.

BY MR. ZUYDHOEK:

Q. Mr. Lisenbee, do you recall testifying before the grand jury on various occasions in connection with this indictment?

A. Yes, sir, I do.

Q. And I am going to show you Government Exhibit 3511 which is a transcript of testimony dated July 22, 1975. Have you reviewed the transcripts of your testimony before the grand jury?

A. Yes,sir, I have.

Q. Do you recognize this as being such a transcript?

A. Yes, sir.

Q. Now, do you recall being examined in connection with a conversation that you had on the 19th of May?

A. Yes, sir.

Q. And do you recall being asked the question, "Now, what did Mr. Cole, - what did you say and what did Mr. Cole say", do you recall being asked that?

A. Not exactly, no, sir.

Q. Well, that is what the transcript says, does it not?

A. Yes, sir.

Q. And do you recall the answer, "I asked Mr. Cole if he could add anything more, if he knew of any possible leaks of pesticides into the pond and he stated 'No, no pesticides were being pumped into the pond either advertently or inadvertently'"; do you recall giving that answer?

A. Yes, sir.

Q. And you now recall that conversation with Mr. Cole?

A. Yes, I do.

MR. ZUYDHOEK: I have no further questions, your Honor.

REDIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Lisenbee, do you recall when the Avalarms, - where you first saw the Avalarms at the FMC lagoon?

A. Not the exact date, sir, but it was in July.

Q. Do you recall when you first suggested that to FMC Corporation?

A. Not the exact date, sir, but I believe it was in May.

Q. Do you recall when you saw the netting installed at the FMC lagoon?

A. Again, not the exact date, but I think it was at the end of July that they started and they had an accident, a high wind. They were still having it completed in October, I believe.

Q. Do you recall when you suggested that?

A. Not the exact date, sir, but again it was in May. I believe I made a number of suggestions at the same time.

Q. Mr. Lisenbee, do you recall when you suggested the installation of individuals to patrol the pond?

A. It was in May, I believe on the 16th.

Q. Do you recall when the guards were, - patrol was instituted?

A. I first saw them on the 25th of June.

Q. Do you have knowledge which led you to believe they were there before the 25th of June?

A. No, sir, other than the fact that they weren't there on the 12th of June.

Q. Mr. Lisenbee, is a house sparrow in the same genus as other American sparrows?

A. Sir, I have no knowledge on that.

MR. COHEN: Thank you, Mr. Lisenbee.

MR. ZUYDHOEK: Nothing further.

THE COURT: Nothing further. Thank you.

MR.COHEN: He has got one further.

THE COURT: Mr. Zuydhoek.

RECROSS EXAMINATION BY MR. ZUYDHOEK:

Q. Just so I understand it, Mr. Lisenbee, you did suggest nets but you had no experience with nets?

A. Yes, sir. The question was put to me by Mr. Cole what could he do, what could the plant do, and I said ideally cover the pond, netting would be one of the examples.

Q. But you weren't able to tell Mr. Cole where he could get the net?

A. I don't believe so, no, sir.

Q. And you didn't know how much they cost?

A. No, sir, I had no knowledge of that.

Q. But you did suggest Avalarms but you had no idea where he could get Avalarms?

A. To the best of my knowledge, yes, sir.

MR. ZUYDHOEK: Thank you.

MR. COHEN: Your Honor, that concludes my questions of Mr. Lisenbee. Once again I move into evidence --

THE COURT: We will defer on that.

MR. COHEN: Your Honor, may I have permission to have Mr. Lisenbee sit with me at the table and assist me with the presentation of this case?

THE COURT: Surely. Next witness, please.

MR. COHEN: Mr. Harris.

EARL J. HARRIS (1821 North James Street, Rome, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Harris, what is your occupation?

A. Associate Analytical Chemist.

Q. Who is your employer?

A. New York State Department of Environmental Conservation.

Q. Where do you carry out your work?

A. At the Rome Pollution Laboratory which is located on the grounds of the New York State Fish Hatchery at Rome, New York.

Q. How long have you been an Analytical Chemist?

A. Practically all of my working life.

Q. How many years has that been, sir?

A. About thirty-seven years.

Q. What are your duties as a chemist?

A. I supervise the operation of the analytical section at the Rome laboratory.

Q. And what work is carried out there?

A. We do pesticide residue analysis, heavy metal, environmental pollutant analysis on fish and wildlife specimens collected in New York State.

E. J. Harris, for Government, Direct.

Q. Can you tell us, please, what your educational background qualifying you for your occupation was?

A. I have a Bachelor of Science degree from the University of Illinois, plus about thirty hours of graduate work in advance courses in Chemistry, Analytical Chemistry Pharmacology and related subjects.

Q. Do you have any practical experience in the field of Analytical Chemistry?

A. Yes, about thirty-seven years.

Q. Have you had experience in chemical analysis of water samples?

A. Yes. That has been one of our, - or was one of my principal responsibilities when I first went to work for the department in 1948 and this has continued since. However, we do not do any great extent of water analysis at the present time, but up until about two years ago, that was one of the main things we did, water analysis.

Q. Have you had any experience in analysis of organs, - analytical chemical analysis of bird organs?

A. Yes.

Q. How much experience have you had in that type of analysis?

A. Oh, several years. We have done a number of analysis of a number of organs for the, - well, Dr. Stone, the wildlife pathologist at Delmar, birds, mammals, fish.

Q. How much experience have you had in the analysis of water and bird organs and other material for the presence of pesticides?

A. Well, we have been doing pesticide residue analysis now since what, 1961, '62, along in there is about the time we started.

Q. Were you working on May 7, 1975?

A. Yes.

Q. Where were you working that day?

A. I had been dispatched to the FMC Corporation at Middleport, New York.

Q. Did anyone go with you?

A. Yes. There were three employees with me of the Department of Environmental Conservation that accompanied me.

Q. Do you remember who they were?

A. Yes. Mr. Spodarick.

Q. Who is he?

A. He has the same position that I have at the Avon Laboratory of the department. Mr. Martin and Mr. Credeman who are department employees. I believe they are fish and wildlife technologists or wildlife techs.

Q. What was your purpose of going to FMC at Middleport, New York on that day?

A. Well, I received a request from my supervisor in Albany, Mr. Specalilli, to go and look into the matter of dead birds, dying birds in and around the FMC lagoon.

Q. When you arrived at the plant, did you see anyone from FMC?

A. Well, yes. After we had checked in at the gate.

Q. Who did you meet?

A. We met Mr. Cole, the plant manager.

Q. Where did you meet him?

A. In his office. Well, as I recall, - well, in his office, yes. That's where we met him, in his office.

Q. Did you have any conversation with Mr. Cole?

A. Yes.

Q. Would you tell us to the best of your memory what he said and what you said?

A. Well, the main thrust of our conversation had to do with what FMC manufactured and what their manufacturing processes were and what, if any, waste discharges they had. That was the main thrust of our conversation and I had with me a list of pesticides which I had received from our own Bureau of Pesticides which were thought to have been manufactured at one time or another by FMC and I asked Mr. Cole if he would examine the list and indicate to me what specific pesticides were manufactured at that time.

Q. Excuse me. Is there a way to make pesticides other than manufactured?

A. Well --

MR. ZUYDHOEK: Your Honor, I don't know that this witness is qualified to testify to manufacturing techniques.

MR. COHEN: Your Honor, I haven't asked him the manufacturing technique.

THE COURT: There are a lot of things that people have done. I do not know whether they come under the heading of manufacture. For a long time to get rid of bugs you plant marigolds near tomatoes and that is supposed to ward off some kind. I do not know whether that would be a pesticide. I will sustain the objection. Go ahead. We are talking about, - we can get this narrowed down.

BY MR. COHEN:

Q. Did you show Mr. Cole the list?

A. Yes, I did.

Q. And what did he do?

A. He indicated which pesticides or which specific pesticides were manufactured by FMC at that time.

Q. Let me show you Government Exhibit Number 12. Do you recognize that exhibit?

A. Yes. This is the list that I gave him.

Q. How do you recognize it, sir?

A. It has my signature on the bottom.

Q. Is there any other way by which you recognize it?

A. The initialing with the letter "M" of the pesticides that were, - Mr. Cole indicated were manufactured by FMC at that time and the fact that one of the pesticides, the name has been spelled wrong and Mr. Cole corrected it, the spelling of it.

MR. COHEN: Your Honor, at this time I would like to move Government's Exhibit Number 12 into evidence.

MR. ZUYDHOEK: No objection, your Honor.

THE COURT: It may be marked in evidence.

(Government Exhibit Number 12 received in evidence.)

BY MR. COHEN:

Q. Now, how did Mr. Cole indicate on that list that certain pesticides were manufactured?

A. Well, he indicated which ones were manufactured by putting the letter "M" in front of that particular pesticide.

Q. Why was it important that you know which ones were manufactured?

A. Well, it was necessary to know which ones were manufactured so that we would have some idea of what kind of waste material we might encounter in further studies.

Q. At that time on May 7, 1975 were you focusing on any specific substance as being the cause of death of the birds?

A. Not at that time.

Q. After your conversation with Mr. Cole, what did you do?

A. Well, the three of us, and by that time there had been three or four other people join the retinue. Mr. Cole and two employees of FMC, - I don't recall their names, - I was introduced to them but I don't recall their names, we all went to the gate in the fence surrounding the lagoon. Someone got out, unlocked the gate, and we all went through and proceeded to walk slowly around the dike and the lagoon looking for dead birds and anything unusual we might find.

Q. Mr. Harris, could you take a look at Government's Exhibit Number 1 and Government's Exhibit Number 2 which is on the easel and advise us where the lagoon is on Government's Exhibit Number 1?

A. This is the lagoon here although on that day --

THE COURT: You will have to keep your voice up, Mr. Harris.

THE WITNESS: This is the lagoon right here, this general area here.

BY MR.COHEN:

Q. Excuse me. I said Exhibit Number 2. Could you take a look at Government's Exhibit Number 3.

A. This is a sketch of the lagoon as it existed on the day that I was there.

Q. Thank you, Mr. Harris. Could you tell us what you did at the lagoon?

A. We walked around the dike and observed a few dead birds, three or four small shore birds, wading birds. I saw one dead duck and I myself found one Canada goose dead on the bank of the dike of the lagoon and also a dead skunk. I remember ultimately we collected, - I collected a water sample from the northwest corner of the lagoon.

Q. Do you recall where the goose was?

A. The goose was on the, - down on the side of the dike away from the lagoon on the north side of the lagoon on the north dike.

Q. Do you recall where the other birds that you saw were?

A. I recall the duck was, - well, just a little south of the northeast corner of the lagoon. I don't recall where the smaller birds were. They were scattered at various locations.

Q. Did you do anything with the goose?

A. Yes. I collected it, placed it in a plastic bag.

Q. Who did you give the bag to?

A. Ultimately I gave it to or it was transmitted to Dr. Stone at Delmar.

Q. Let me show you Government's Exhibit Number 20 and specifically Photograph 21. Is that an accurate representation of the skunk as you saw it on that day?

A. Yes. Yes, it is.

Q. Thank you. Do you recall where you took the water samples?

A. I took the water samples from the lagoon at the northwest corner which had been indicated to me as being the location of the pipe or the outlet from the lagoon which they periodically drain.

Q. What did you do with the water sample?

A. Well, I took it back to Rome and ultimately it was analyzed.

Q. What substance was it analyzed for?

MR. ZUYDHOEK: Your Honor, lack of foundation here as to whether or not he did the analysis.

THE COURT: Yes. That is important.

BY MR.COHEN:

Q. Mr. Harris, did you do the analysis?

A. Yes.

Q. Could you tell us what you analyzed the substance for?

A. Well, I recall we ran a PH on it, ammonia, free ammonia and total ammonia and also analyzed it for carbofuran.

Q. Prior to your analysis for carbofuran, had you had any previous experience in analyzing substances for the presence of carbofuran?

A. Yes. Not too long before that earlier in the year 1975 we had become involved with the New York State Department of Agriculture and Markets Laboratory on a problem of determining carbofuran residue in potato.

Q. Inyour analysis of the water, what procedure did you follow?

A. We followed the procedure which had been obtained from the FMC Corporation.

Q. Could you briefly describe what you did to analyze the water?

A. The water was shaken with methylene chloride and the methylene chloride solution was put through what we call a nuchar adclay column for clean-up and the yield from this column was injected into a gaschromatagraph. The effluent from the gaschromatagraph was passed through a Coulson microconductivity detector which was rigged in the nitrogen mode and from this surcharge we get out from the detector, we determined by the use of standard samples of carbofuran which had been obtained from FMC, we identified the presence of carbofuran from the retention time using both the Coulson detector and also a flame ionization detector.

Q. In addition, did you analyze organs of birds for carbofuran sent to you by Dr. Stone?

A. Yes. We analyzed quite a few organs from Dr. Stone.

Q. How did you perform the analysis of those organs?

A. Well, essentially the same way except that the organs themselves were ground in a mortar with sodium sulphate and they were shaken up in a bottle, centrifuge bottle with methylene chlorides infused and ultimately the methylene chloride layer was put through a nuchar adclay column for clean-up and the yield from this was analyzed the same as the water samples.

Q. And did there come a time when you analyzed a further water sample sent to you by Dr. Stone which he reported in the specimen he sent to you that it was collected on May 29, 1975?

A. I don't recall. I would have to refer to my laboratory notes, but I don't recall offhand another water sample that we analyzed.

Q. Did you make a report of analysis to Dr. Stone?

A. Yes.

Q. Would that report of analysis refresh your recollection with respect to that other analysis of a further water sample?

A. Yes, it probably would.

Q. Let me direct your attention to Government Exhibit 3516. Is that a copy of your report to Dr. Stone?

A. Yes.

Q. And let me direct your attention to Paragraph, in the middle of the first page of that report, to the effect that subsequently a water sample collected from the FMC Corporation lagoon on May 29, 1975 was analyzed.

A. That's right. I recall that now. I didn't collect the samples but they did come from Dr. Stone.

Q. Could you tell us, please, how you analyzed that later sample?

A. Exactly the same way the first one was analyzed.

Q. As a result of your analysis of the two water samples and the bird organs, did you reach an opinion as to whether, - as to what they contained and whether or not carbofuran was present?

A. Yes. We concluded that carbofuran --

MR. ZUYDHOEK: Your Honor, I ask that he answer the question "Yes" or "No".

THE WITNESS: Yes.

BY MR. COHEN:

Q. Do you recall offhand what the result was?

A. We found --

MR. ZUYDHOEK: The answer to the question again is "Yes" or "No".

THE WITNESS: Yes.

BY MR. COHEN:

Q. Could you tell us, please, what the result of the water analysis was?

MR. ZUYDHOEK: I object, your Honor. I don't believe the witness is qualified to testify to that conclusion.

THE COURT: Overruled.

THE WITNESS: Yes. We found the presence of carbofuran in the water sample.

THE COURT: Mr. Harris, you conducted yourself all of these analyses?

THE WITNESS: I either conducted or supervised, sir, the analyses. I was there when they took place. Either I did them personally or they were done under my supervision.

THE COURT: In the laboratory where you are located?

THE WITNESS: Yes.

BY MR. COHEN:

Q. Do you recall the result of your analysis of the organs of birds for the presence of carbofuran?

A. Yes.

Q. Could you tell us what the result of that was?

MR. ZUYDHOEK: Same objection, your Honor.

THE COURT: Overruled.

THE WITNESS: We found the presence of carbofuran in a number of the organs that were submitted by Dr. Stone.

BY MR. COHEN:

Q. Do you remember the specific amount of carbofuran you found for each organ?

A. No, I don't recall that. There were quite a few of them.

Q. Do you remember the specific amount of carbofuran with respect to each water sample?

A. No. I would have to refer to either laboratory notes or the report for that.

Q. Let me show you Government Exhibits 3516 and 3543. Do you recognize those exhibits?

A. Yes.

Q. How do you recognize them?

A. Well, I recognize them as being copies of the reports that I wrote and submitted to Dr. Stone.

Q. And do those contain the specific report of your analysis?

A. Yes.

MR. COHEN: Your Honor, I would like to move into evidence Government's Exhibits 3516 and 3543.

THE COURT: Mr. Zuydhoek?

MR. ZUYDHOEK: No objection, your Honor.

THE COURT: All right. It will be marked in evidence.

(Court Exhibits Numbered 3516 and 3543 received in evidence.)

THE COURT: That is 35 dash 16?

MR. COHEN: No, your Honor. I have marked them 3516 and 3543.

THE COURT: I hope we are not going to see all the intervening numbers.

BY MR. COHEN:

Q. Well, your Honor, there won't be three thousand exhibits in this case. Mr. Harris, could you tell us, please, what the term small "m", small "g", small "l", with a "minus 1" above it means?

A. Milligrams per liter.

Q. And what is a milligram per liter?

A. Well, it can also be referred to as parts per million.

Q. And could you tell us, please, what the term capital "F", capital "I", capital "D" means?

A. Flight ionization detector.

Q. Would you tell us, please, what a "PH" is?

A. "PH" is an abitrary scale that chemists use to determine the acidity or alkalinity of a substance. The scale ranges from zero to 14, 7 being the neutral point. Anything less than 7 is considered to be acid with the acidity increasing as the number approaches zero; anything over 7 being considered alkaline with the alkalinity increasing as the number increases toward 14. It is an arbitrary scale. If you want me to go into the mathematics of how it is derived, I will do so, but, frankly, I believe it will bore the Court.

Q. Thank you., I won't ask you. Mr. Harris, could you tell us, please, what the term small "u", small "g" means?

A. Microgram.

Q. What is a microgram?

A. One-millionth of a gram.

Q. Could you tell us what the term "trace" means?

A. We consider a trace amount an amount that is there but the material is tactilible, we can observe its presence but it is an amount smaller than we can accurately measure quantitatively.

Q. Can you tell us what the term capital "N", capital "D" means?

A. Means not detected or non-detected.

Q. So that is different from a trace?

A. Yes.

Q. Could you tell us what the term "3 dash OH", capital "O", capital "H" carbofuran means?

A. Well, this refers to the hydroxylated carbofuran, - it is hydroxylated in the three position of the ring structure of the molecule.

Q. What is three hydroxylated carbofuran?

A. Well, it is one of the metabolites of carbofuran.

Q. Can I ask you what a metabolite is?

A. A metabolite is one of the substances formed when carbofuran is ingested. As the body eliminates it, the hydroxylated form, - the carbofuran is converted to a hydroxylated form by the biochemistry of the body and this is done, - it is part of the detoxification, detoxifying action in the body.

Q. Now, do those two reports contain results of all the samples and specimens of bird parts received from Mr. Stone which you actually performed analysis on?

A. Yes.

Q. Did you receive any other samples of, or specimens of bird parts from Mr. Stone?

A. Yes, we did.

Q. Do you recall about how many others you received?

A. Not offhand. I would estimate probably equally as many as are reported here.

Q. Did you perform an analysis of those for the presence of carbofuran?

A. No.

Q. Were you requested to?

A. We had been requested to, yes.

Q. Why didn't you analyze them?

A. Well, it was about that time that the problem of PCB came up in the Hudson River and we were directed by then Commissioner Reed to expend all of our energies on the problem of PCB's in the reaches of the Hudson River so we had no more time to devote to this particular problem and by the time that we did have time to get back to it, it was my opinion that the specimens had been held too long for an adequate analysis. The analysis would probably no longer be valid.

MR. COHEN: Thank you, Mr. Harris. Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. May I have those exhibits, Mr. Harris. How many birds shown on Exhibit 3516 were analyzed by you?

A. They were all either analyzed by me personally or under my immediate supervision.

Q. How many, - count them, please.

A. How many?

Q. Yes.

A. One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, - fourteen. There are fourteen specimens listed.

Q. And how many on 3543?

MR. COHEN: Pardon me. I wasn't able to hear the question.

BY MR. ZUYDHOEK:

Q. How many on 3543?

A. 3, 6, 9, - 9.

Q. A total of twenty-four?

A. How many did I say on the first one?

Q. Fourteen.

A. Fourteen and nine is twenty-three.

Q. Okay, so there are twenty-three separate birds that you got analyses for indicating some level of or indicating that you analyzed them for carbofuran?

A. Yes, the organs from twenty-three different birds.

Q. Now, what is the relationship between the column on

3543 "carbofuran recovered" and "3OH" "carbofuran recovered"?

A. That indicates the amount of each particular compound that we recovered from those individual samples, those particular samples.

Q. All right, so the carbofuran is a different compound than the three o?

A. Oh, yes, it is indeed. It has an entirely different retention time on the gaschromatagraph.

Q. So you run a different test for it?

A. It is done on the same instrument but it has a different retention time. The peak for carbofuran does not come out in the same manner the peak for carbofuran comes out. There is a difference between the two. There is a difference in the retention time.

Q. Let me try that one again. The peak for carbofuran does not come out at the same time as the peak for --

A. The hydroxy carbofuran. They have two different distinct retention times.

Q. All right. Now, why does the testing listed on 3543 reflect the two tests and the testing on 3516 only reflects one test?

A. I think I recall at that time we did not have a standard at the time that those analyses were done. We had not yet received the standard for the hydroxy carbofuran from

FMC.

Q. So the standard you mention would have been received from FMC sometime between June 25 and June 30, 1975?

A. These are the dates of the reports. These are not the dates on which the analyses were performed. These are the dates of the reports.

Q. Okay. Do you know when the analyses were performed?

A. I would have to refer to my laboratory record book.

Q. Do you have that with you here?

A. Yes, I do.

Q. Let me just so I understand, the designation "ND" means non-detectable?

A. No, not detectable, non-detected.

Q. Oh, okay.

A. Not non-detectable, non-detected.

Q. If it was there, you could detect it?

A. If it had been there, we would have seen evidence of it if it had been there in a detectable amount.

Q. So with respect to, for example, Identification Number 3823 on Exhibit 3543 you have got non-detected for carbofuran recovered and trace for 3OH carbofuran?

A. Yes.

Q. All right. Then on Exhibit 3516 with respect to Identification Number 37-30 you have got carbofuran recovered trace and, of course, you have got no analysis for 3OH carbofuran?

A. Yes.

Q. For Identification Number 37-29 none detected?

A. Yes.

Q. Carbofuran?

A. Yes.

Q. And for number, Identification Number 3616 none detected?

A. Yes.

Q. Now, these results were reported to Dr. Stone?

A. Yes.

Q. You didn't make any judgment with respect to whether or not the amounts of carbofuran present caused any death, did you?

A. No.

Q. That is not really your area, is it?

A. That's right.

Q. This analysis that was done on the potato, was that the same analysis you did in connection with the bird death at the FMC plant?

A. No, an entirely different matter, had no bearing on this whatsoever.

THE COURT: Mr. Zuydhoek, the methods you used, would they be the same?

THE WITNESS: The methodology was the same, yes, but the matter with the potatoes had no bearing on this whatsoever.

BY MR. ZUYDHOEK:

Q. Okay. Why, if the methodology was the same, was it necessary to obtain from FMC some data with respect to how to do your tests?

A. I had originally gotten a copy of the procedure for carbofuran from the Agway Markets which they in turn had gotten through FMC Corporation.

Q. In connection with the potato matter?

A. The potato matter, yes.

Q. So when you say it was an FMC data sheet, that was the one you were referring to, the one you used for the potato matter?

A. Yes.

Q. Okay. You are familiar with the term "caustic", are you not?

A. Yes.

Q. Sodium hydroxide?

A. Yes.

Q. What effect does caustic or sodium hydroxide have on PH?

A. It raises the PH. The more sodium hydroxide you put in, the higher the PH level goes.

Q. It is a fairly well recognized way in which to raise PH?

A. With sodium hydroxide, yes. Either neutralize the substance or raise the PH to the ultimate sign.

Q So as I understand this PH question, if a liquid is acetic and you add PH to it --

A. If you add what?

Q. I am sorry. If you add sodium hydroxide to it, you raise the PH from the acetic level approaching the neutral scale and perhaps above it?

A. Yes.

Q. And it becomes basic or alkaline?

A. Yes.

Q. Which mean the same thing?

A. Yes.

Q. Now, did you have a discussion with Mr. Cole on May 7th when you were out at the plant? You mentioned you did.

A. Yes.

Q. And you discussed, I think you said, what products there were at the plant?

A. The products that they manufactured at that time.

Q. All right. Was there any specific discussion with respect to any of the products that you can recall?

A. I don't recall any specific discussion. There probably was but I can't recall it at this time.

Q. Do you recall any specific discussion about zinc?

A. About zinc, no. Only that he indicated that they made zinc ammonium carbamate.

Q. Made zinc and what?

A. Zinc ammonium carbamate and also zineb which is a zinc derivative of a carbamate.

Q. Was there any specific discussion with respect to the ammonia, the ammonium?

A. No. Well, there may have been. I don't recall if there was or not.

Q. Did you ask Mr. Cole what he thought could be in the lagoon?

A. I probably did but I don't recall what his answer was or if he was specific. I don't recall any part of that conversation.

Q. You really don't have much of a recollection about that conversation at all, do you?

A. No. We weren't, - well, he did indicate that there probably was, as I recall, that the lagoon carried the waste from the carbofuran operation and possibly one or two other parts of the plant.

Q. He indicated that the lagoon carried the waste?

A. From the carbofuran operation.

Q. Did he tell you how the waste from the carbofuran operation was treated?

A. He may have. I don't recall.

Q. Did you inquire as to the manner in which the waste was carried from the carbofuran operation?

A. Yes. It was indicated to us as being conducted through a pipe down to the lagoon.

Q. You were shown a pipe?

A. Where it entered into the lagoon, yes.

Q. You didn't see the pipe where it went from the Furadan plant?

A. No. We didn't go into that part of the plant at all.

Q. Did you inquire with respect to the specifics of this map here, Government Exhibit 1?

MR. COHEN: I object, your Honor. It seems an awfully vague question.

THE COURT: I do not know.

THE WITNESS: I don't recall seeing that map that day.

BY MR. ZUYDHOEK:

Q. Can you point out for me where the Furadan plant is on this map?

A. No, I don't know where it is. We didn't go to the Furadan plant. The only place we went was the lagoon itself. As I recall it, the only part of the plant we went to was the lagoon area, the lagoon and the area adjacent to it.

Q. Were you aware of the fact that there was a different way of handling waste from the dithiocarbamate plant than from the Furadan plant?

A. Not as I recall, no.

Q. As far as you were concerned, they were all handled the same way, right?

A. Well, he did indicate that there was some waste that went out from another part of the plant. Well, it would be on the east, - or the west side of the plant. There was a stream that went out from there and we also sampled that stream too.

Q. All right. Let me ask you, the pipe that goes into the lagoon, you know what I mean?

A. Yes.

Q. Okay. That is shown right up here on Government's Exhibit 1 about where I am pointing my finger.

A. Yes.

Q. Where did that pipe come from, the Furadan plant?

A. As I recall it was indicated at that time as coming from the Furadan plant, yes.

Q. Not from anywhere else?

A. It may have come from other parts, but it was indicated to me the Furadan was carried through that pipe.

Q. So as far as you are concerned, what you knew when you met at the plant on that day was that Furadan left the Furadan plant, went through that pipe and right into the lagoon?

A. The waste from the Furadan manufacturing went through that pipe.

Q. Without any kind of treatment?

A. I don't recall whether they discussed the treatment or not. I don't remember that they did. They may have.

Q. Would it have been appropriate as far as your knowledge is concerned to treat carbofuran with caustic?

A. I would have no knowledge about the waste treatment of carbofuran myself. I am not a sanitary engineer.

MR. ZUYDHOEK: I suspected that. Thank you.

THE COURT: Anything else?

REDIRECT EXAMINATION BY MR. COHEN:

Q. Yes. Mr. Harris, at the time you conducted the experiments reported in Exhibit 3516, did you have a standard for carbofuran?

A. Yes.

Q. Could you tell us what a standard is? You also mentioned a standard for the metabolite 3OH. What do you mean by a standard?

A. A standard is as pure a preparation of the material for which you are analyzing. The original standard that we used we had gotten from the Agway Markets lab.

Q. Is it ordinary in setting up a procedure for analysis for a pesticide to ask the corporation which manufactures the pesticide what the procedure is to detect it?

A. Oh, yes. It is a common thing to do this because, if I may be allowed to explain this, under the law they are supposed to produce a procedure for the analysis of residues under the Federal Pesticide Law.

Q. Did your understanding of the disposal of carbofuran into the holding lagoon in any way affect the analysis of the samples, the results of which you have reported in Government's Exhibit 3516 and 3543?

A. No.

MR. COHEN: I have no further questions for Mr. Harris.

THE COURT: Anything else, Mr. Zuydhoek?

MR. ZUYDHOEK: No, your Honor.

THE COURT: Thank you, Mr. Harris. We will take a short recess until 4:15 and then resume. We will be in recess for a few minutes.

(Recess taken at 4:07 p.m.)

* * * * * * * * *

PROCEEDINGS: After recess, 4:17 p.m.

APPEARANCES: As before noted.

(Jury present.)

PATRICK P. MARTIN (21 Geyer Road, Elma, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Martin, what is your occupation?

A. I am a Fish and Wildlife Technician, New York Department of Environmental Conservation.

Q. Mr. Martin, could you sort of bend that microphone a little bit closer to you. Thank you. Could you tell us how old you were in April 1975?

A. Twenty-two years old.

Q. What was your occupation in April of '75?

A. I was a Fish and Wildlife Technician, New York State Department of Environmental Conservation.

Q. How long had you been a Wildlife Technician?

A. Approximately a year.

Q. What are your duties as a technician?

A. Well, I am involved in the technical aspects of wildlife management programs, habitat management. I am involved with handling captive wildlife, nuisance wildlife, investigations pertaining to wildlife mortality, wildlife die-offs and collection of biological and statistical data for wildlife purposes.

Q. In April and May of 1975, was there an established procedure for the collection of wildlife specimens?

A. No, there wasn't as far as written procedure.

Q. Were you working in April and May of 1975?

A. Yes, I was.

Q. How long had you been a technician up to that point?

A. Approximately a year.

Q. Did you have any educational background which qualified you for your employment?

A. Yes. I attended college for approximately four and a half years in a double degree program. I have a degree from Kent State University in Ohio in Biology and I have a degree in Natural Resources from the University of Michigan.

Q. Could you tell us what your duties were with respect to checking on wildlife mortality?

A. Well, mostly we get a report of wildlife mortality and my superiors ask that I go up and investigate and obtain any information I could regarding the wildlife mortality. In some cases this involves just verifying that there is a die-off and at that point my first, - the first time

I approach any situation I try to obtain all the information I can.

Q. Did you have any practical experience in the duties of your occupation prior to April 1975?

A. Well, I had work experience for about a year and I also had attended a ten-week intensive summer field study at the University of Michigan.

Q. When was that?

A. That would have been the summer of '73.

Q. Now, were you working on April 25, 1975?

A. Yes, I was.

Q. Could you tell us where you went that day?

A. I went to the FMC plant in Middleport.

Q. Was anyone with you when you went to the plant?

A. Yes. There was Senior Fish and Wildlife Technician Richard Credeman and Paul Ferscht, Assistant Sanitary Engineer. Both men are from our department.

Q. What route did you take to get to the plant that day?

A. Well, I met Dick in East Aurora and Dick and I proceeded to Buffalo and met with Paul Ferscht and then we went New York State Thruway to Route 77, north to Middleport.

THE COURT: Mr. Cohen, does it really matter how he went there, whether he took the Thruway or some other road?

BY MR. COHEN:

Q. I was just going to ask another question. On your way to the plant on the 25th, did you see any Canada geese?

A. Yes, I did, because on route, - a part of the Thruway there is certain areas where there is very visible waterfowl and again on Route 77 north it passes right between the Alabama Swamp complex which is Iroquois National Wildlife Refuge and the Tonawanda and Oak Orchard Game Management areas owned by the State.

Q. How close to the FMC plant did you see Canada geese that day?

A. Geese were in the fields feeding all the way, - well, approximately a mile away which I can see them feeding in the fields.

Q. Do you recall about what time you arrived at FMC that day?

A. Approximately 11:30 a.m.

Q. What did you do when you arrived there?

A. We had met with Environmental Conservation Officer Richard Lang and we met him at the gate. We proceeded into FMC where we talked with the plant manager, Mr. Bill Cole, and he gave us a little background information on FMC and then we went to the lagoon area.

Q. At that time did you do the talking to Mr. Cole?

A. No. Paul Ferscht was doing it pretty much at that time.

He had known Mr. Cole previous to this.

Q. And was Paul Ferscht one of your supervisors at the time?

A. Well, he is not an immediate supervisor, but in that case he would have been acting supervisor in that he is familiar with this situation and it is under his jurisdiction and I would probably have gone for any advice to him.

MR. ZUYDHOEK: Your Honor, I don't think we should get into the area of what he probably would do.

THE WITNESS: Well, I would have gone to him for advice.

THE COURT: Forget about "probably" or "might have". All we are interested in is what occurred. Mr. Cohen.

BY MR. COHEN:

Q. After your conversation with Mr. Cole, what did you do?

A. We proceeded to the lagoon area.

Q. Did you have any equipment with you at the lagoon?

A. We had plastic specimen bags and hip boots.

Q. How were you dressed at the lagoon?

A. I had the hip boots on and the plastic bags and a jacket and stuff.

Q. Could you tell us what you did at the lagoon?

A. Well, Paul Ferscht was talking with Bill Cole so Dick Credeman and Dick Lang and I started to walk around the lagoon and we just started to investigate and look and observe.

Q. What did you observe?

A. Well, the first thing I noticed in looking at the lagoon was that it was a dead hole of water, as best I can describe it.

MR. ZUYDHOEK: Now he is testifying to conclusions, your Honor, to which he is unqualified.

THE COURT: You say a dead what?

THE WITNESS: Hole with water in it.

THE COURT: All right. I will grant the motion and strike the answer.

BY MR. COHEN:

Q. Could you tell us --

THE COURT: Ladies and gentlemen, if I grant an objection as I have just done, you should disregard the answer.

BY MR. COHEN:

Q. Could you tell us what you saw?

A. Well, okay, I saw the lagoon and I saw the water and I began looking for supposed wildlife mortality that was reported at the plant and I began noticing bodies of waterfowl.

Q. [illegible] did you notice the bodies?

A. There were badly decomposed bodies of Canadian geese on the dike. On the other side of the dike, - okay, that is the side away from the lagoon itself, - there were decomposed bodies of waterfowl on the bottom in the northeast corner and some of these were identified to a certain point. Others weren't because they were so badly decomposed and there were, I believe, a few fresh specimens.

Q. About how many fresh specimens were there?

A. I identified one as a yellow legs and I put that in a plastic bag and I believe there were two other ones that were sufficiently fresh in a condition that necropsy could be done on them.

Q. And what did you do with the other ones that you didn't collect?

A. I left those where they were.

Q. What was the water level of the lagoon on that day?

A. On that day I would call it normal water level because the water --

MR. ZUYDHOEK: Your Honor, normal water level certainly doesn't mean anything to a man who has never been there.

THE COURT: That is opinion if you have never been there before. Just tell us as best you can if you relate it to the top of the dike or whatever.

BY MR. COHEN:

Q. Excuse me. Does "normal water level" have a technical meaning?

A. Yes. I am involved in building small marshes and small marsh construction which involves designing dikes.

Q. Could you tell us what the term "normal water level" means?

A. "Normal water level" would be that level on the dike allowing enough freeboard to sufficiently hold in the water impoundment. In this case it would be where the water level reaches the plant line. In other words, you have plants growing down the side of the dike to the water. At that point where the water and the plants meet would be normal water level. If it was low, there would be a space of dirt. If it was high, plants would be underneath the water, so at that time of the year for that level it was normal water level.

Q. How long were you at the holding lagoon on May, - on April 25, 1975?

A. Approximately an hour, hour and a half.

Q. Would you just take a quick look at Government's Exhibit Number 1 on the bulletin board, Number 3 on the stand and advise us whether or not that was the lagoon you were at and show it to us?

A. With a few minor revisions, this is the lagoon area right here and this is the lagoon right here, yes.

Q. Thank you. Directing your attention to May 7, 1975, were you at the FMC plant at Middleport, New York on that day?

A. Yes, I was.

Q. Do you recall about what time you got there?

A. Approximately 10:30 a.m.

Q. Was anyone with you at that time?

A. Richard Credeman was with me and we met Earl Harris and an associate of his at FMC.

Q. Were you out at the lagoon that day?

A. Yes. We went to the lagoon that day.

Q. What did you do at the lagoon that day?

A. Well, Dick and I had followed our previous procedure to walk around the lagoon and observe and pick up any specimens we could find.

Q. And on that day did you find any specimens?

A. Yes, we did. Earl Harris found a Canadian goose on the bank on the dike on the north end and Dick and I picked up a couple more specimens.

Q. Do you recall what they were?

A. I believe they were ducks, but I would have to check my notes for that.

Q. What did you do with these specimens?

A. We put them in a plastic bag that Dick was carrying at that time.we brought with us and later we gave them to Earl Harris.

Q. Will you tell us what the water level of the lagoon was on May 7th?

A. Okay. At this time the water level was above normal. The plants I described earlier were below water level and there wasn't as much freeboard on the dikes anymore.

Q. Let me direct your attention to May 13, 1975. Did there come a time when you went to the FMC plant on that day?

A. Yes, I went to the FMC plant on May 13th.

Q. About what time did you arrive there?

A. Approximately 9:00, 9:30 in the morning.

Q. Was anyone with you at that time?

A. No. I came alone.

Q. What did you do, did you go to the holding lagoon on that day?

A. Yes, I went to the holding lagoon.

Q. Could you tell us what you did there?

A. Well, at that time I collected any specimens again that

I had found and I took five one-gallon water samples at various locations in the lagoon.

Q. Do you recall the specimens you saw on the 13th?

A. On the 13th I can remember distinctly a ring billed gull and a piebilled grebe.

Q. Was the grebe alive when you saw it?

A. Yes, it was.

Q. Where was it when you saw it?

A. It was along the north end dike.

Q. What was it doing?

A. Well, we kind of, - when we walked by, we scared it out and it made an attempt to fly away but it couldn't make it, kind of fluttered and splashed out into the water.

Q. Did you observe it in the water?

A. Yes, I did.

Q. What was it doing in the water?

A. Well, a grebe is a waterfowl. It is an unusual bird in the way it sits on the water. It is very distinctive and this bird sat lower and more lopsided than a normal grebe would sit in the water. It was just sitting there. It looked very unusual.

Q. And what did you do with that grebe?

A. Well, I herded it tow[illegible] shore and dispatched it to take it as a specimen which I later submitted to Dr. Ward Stone.

Q. What did you do with the other birds you collected on May 9th?

A. On May 9th?

Q. Excuse me, on May 13th.

A. On May 13th all the birds I collected that day were put in a plastic bag along with the five one-gallon water samples I took and I immediately drove those to the Weedsport exit of the New York State Thruway where I met Dr. Ward Stone's staff and I turned everything over to them.at that time.

Q. How long were you at the lagoon on the 13th?

A. Approximately an hour, hour and fifteen minutes.

Q. Let me direct your attention to May 15th. Did there come a time on May 15th when you were at the FMC plant at Middleport, New York?

A. Yes, there was. I was at FMC on May 15th.

Q. Do you recall when on May 15th you were at the plant?

A. I arrived at the plant approximately 1:00, 1:15 in the afternoon.

Q. Was anyone with you at that time?

A. Yes, there was. Russell Chenne who is the Acting Wildlife Manager of Region 9.

Q. Could you tell us what you did at the plant, please, on May 15, 1975?

A. Well, Russ was interested in the FMC lagoon via reports that I had given him on the phone and written reports. He wanted to see the area for himself and he talked with, I believe it was Drew Lindsey, a plant employee, and Russ and I and Drew walked around the lagoon. Russ was more interested in the function of the lagoon and where the water goes and where the water comes from, that type of thing.

Q. Did you walk completely around the whole circumference of the lagoon on the 15th?

A. Yes, I walked around what would be the dike portion of the lagoon, but I did not go out on the two peninsulas and the island as I had usually done.

Q. Did you find any birds on the 15th?

A. On the 15th we found one yellow legs.

Q. Did you collect it?

A. Right.

Q. What did you do with that yellow legs that you collected?

A. Well, I took the bird home and later sent it to Dr. Ward Stone.

Q. What time did you leave the lagoon?

A. I would say approximately quarter to 3:00.

Q. At anytime while you were at FMC on May 15, 1975, did you see Leonard Lisenbee?

A. No, I did not.

Q. Let me direct your attention to May 9, 1975. Were you also at the FMC plant at Middleport, New York on May 9, 1975?

A. Yes. On May 9th I was at the plant.

Q. Did you have anyone with you at that time?

A. Yes, Mike Ermer. He is a Wildlife Biologist at the Olean office.

Q. What did you do on May 9th?

A. Well, Mike was also interested in the FMC lagoon area as he would have been my supervisor and I took him over to FMC to show him again what I had written about in previous reports and talked to him on the phone about, and we met with Drew Lindsey, I believe, and we walked to the lagoon area again, and made an investigation.

Q. Did you see anything on the surface of the lagoon on May 9th that wasn't there on May 7th?

A. Yes. On May 9th we were informed that plant employees were out in boats putting out styrofoam squares approximately eight to twelve inches with little metal flags on top of them. They were putting these all over the lagoon and they said it was an effort to scare birds.

MR. ZUYDHOEK: Your Honor --

THE WITNESS: Excuse me.

MR. ZUYDHOEK: I do not object to his testifying what he saw but when he starts saying what he was informed and what he was told, I want to know who told him and who informed him.

THE WITNESS: Okay. Drew Lindsey --

THE COURT: Excuse me, yes. You tell us first what you saw and then, Mr. Cohen, if there is some conversation that ought to come out, then he can tell us about that.

THE WITNESS: Okay. I saw two plant employees putting styrofoam squares with little flags on them all over the water of the lagoon.

BY MR. COHEN:

Q. Did you observe any birds at the lagoon on May 9, 1975?

A. Yes. As we walked around the lagoon again at the north end, a Canadian goose went off into the water, tried to fly away but didn't make it and just kind of flew out into the water.

Q. What did you observe about this goose in the water?

A. Well, mostly what gave it away to me was an extremely unnatural action of this goose.

Q. What do you mean, as opposed to what?

A. It couldn't fly. It made an effort to fly. It was out of balance. It wasn't coordinated. It didn't fly normal and kind of flopped into the water and tried to swim away.

Q. What did you do with respect to this goose?

A. Well, we wanted to collect it for a sample for Dr. Ward Stone and we asked the plant employees to herd it over to the shore with their boat where we dispatched it and took it with us.

Q. Why did you desire to collect that goose?

A. Well, I talked with Mike before we did this. We decided that this specimen would provide insights for Dr. Stone as to why it was like this. We hadn't found any live birds. We had always found dead birds and this was in the process of dying and we decided to dispatch the bird and indicate to Dr. Stone that we dispatched it and describe exactly what it looked like to us and it was submitted to Dr. Stone at the pathology lab.

Q. Did you actually touch that goose with your hands?

A. Yes. I had to reach into the water to get it and I took it and put it in my truck. I had no specimen bag at that time so I put it in my truck.

Q. Have you touched other geese with your hands before you touched that goose?

A. Yes, I have, waterfowl.

Q. Can you tell us if there was anything distinctive about that goose as opposed to other geese that you have handled?

A. Yes, there was. Waterfowl exhibit an oily feel when you pick them up which makes the water go off the duck's back, so to speak, and this bird no longer had that feeling to it. It was soggy. I would describe it as a sponge. All the feathers had absorbed water and it was quite an unusual distinctive feel.

Q. Did you collect any other birds on May 9th?

A. No, I did not.

Q. Thank you, Mr. Martin. Oh, excuse me, one other, - a couple other questions. Could you tell us what the water level was on May 9th?

A. On May 9th I believe the water level was lower than normal although I may have got that confused with the 15th, but I think it was the 9th it was lower than normal because my previous time there it was higher than normal. That's right, I was there on the 7th. On the 9th it was lower than normal.

Q. Do you recall how it was on the 13th?

A. No, I do not, not exactly.

Q. Do you recall how it was on the 15th?

A. I would say it was normal or a little above.

Q. Now, when it was lower than normal, was there any exposed mud?

A. Yes, there was. As I said, the plant line ended and the water was lower and there was a ring. All I can describe it is a ring of white, a white substance all the way around on that dirt almost like a ring in the bathtub.

Q. At any of the times you were at the area between April 25th and May 15, 1975, did you notice any odor?

A. Yes. At certain days at certain times there was a very strong odor coming off the lagoon, almost enough to make your eyes tear, and I couldn't describe the odor myself. I wouldn't exactly know what to call it.

MR. COHEN: Thank you.

THE COURT: Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. So I understand it, Mr. Martin, prior to 1975 you had been with the Department of Environmental Conservation how long?

A. Approximately a year.

Q. And among other things your duties involved wildlife mortality?

A. Yes, investigations of wildlife mortalities.

Q. Investigations of bird deaths or animal deaths similar to the one that was involved in April 1975 at FMC?

A. Up until this time I had nothing as severe as had happened at FMC. I would verify if there was five dead turkeys hit by a car or there was a dead bear in Chautauqua County, one of my duties would be to go and pick this bear up and later submit it to Dr. Stone if we did not know the cause of death.

Q. Did you ever investigate a mortality involving migratory birds prior to April 1975?

A. Migratory birds, no, I did not.

Q. You heard Mr. Lisenbee describe the non-migratory birds, did you not? Were you here when he described them?

A. Yes, I was.

Q. And you don't have any recollection of having investigated any migratory bird deaths prior to April of 1975?

A. I may have found a dead duck or a dead cardinal and because it is a migratory bird I probably picked it up. In most cases it is usually picked right up off the road. That is a migratory bird. As far as anything severe and as numerous as the ducks and geese we had found at FMC, no, nothing. That was the largest I have ever been on.

Q. It is not unusual for a migratory bird to be hit by a car, is it?

A. Well, yes and no.

Q. Had you ever investigated a migratory bird death involving an automobile prior to April 1975?

A. No.

MR. ZUYDHOEK: I guess I misunderstood your earlier testimony. No further questions.

* * *

PROCEEDINGS: June 28, 1977, 10:30 a.m.

* * *

ORRIN DUVALL (383 South Street, Lockport, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Duvall, could you tell us what your occupation is, please?

A. My occupation is ground keeper at FMC.

Q. What plant of FMC do you work at?

A. I work at Middleport, New York.

Q. How long have you worked at the Middleport, New York plant?

A. Since March 17, 1969.

Q. How long have you been a grounds keeper there?

A. I have been a grounds keeper four years.

Q. Could you tell us, please, what your duties are as a grounds keeper?

A. My duties are operating a tractor, a little tractor and a big tractor, cutting grass, trim shrubs, plant flowers and in the wintertime plow snow, salt down the walks.

Q. Were you working on April 23, 1975?

A. Yes, I was.

Q. Could you tell us what you did that day?

A. Yes, sir, I come in at 6:30. I punch in at 7:00 o'clock. I start working five minutes after that and I went down my shop, opened my shop up and got my tools out.

Q. What tools?

A. My tractor, my trailer and rakes, shovels, whatever I needed.

Q. What did you do after that, sir?

A. Then I started out in the fields to clean up what I had to do.

Q. Did there come a time on April 23, 1975 when you were at the holding lagoon at the FMC plant?

A. Yes, sir, there was.

Q. Okay. Could you just take a quick look at Government's Exhibit Number 1 which is that map up on the board and tell us what holding lagoon it was that you were at and show us where it is on the map, please. You can get out of the chair.

A. This is just a sketch. I don't know the sketch at all.

Q. Okay. Could you look at Government's Exhibit Number 3 which is on the bulletin board right there. Is that a diagram of the lagoon you were at that day?

A. That's a rough sketch of it, yes.

Q. And are those photographs of the lagoon you were at that day? Look at the photographs.

A. Yes. Some of them I recognize.

Q. Okay. Could you sit down again, Mr. Duvall, please. How did you come to be at the lagoon that day?

A. I was called by my supervisor.

Q. And what did he tell you to do?

A. To get, - to take out the necessary tools I needed and go out to the lagoon, to the pond.

Q. What kind of clothes were you wearing when you went out there?

A. I was wearing coveralls, plant coveralls, plant cap, and safety work boots at that time.

Q. Did anyone go with you?

A. Yes, I had a helper.

Q. Who is your helper?

A. My helper is Mr. Fred Wells.

Q. And who is your supervisor?

A. My supervisor at that time was Mr. Julius Antonucci.

Q. What did he tell you to do at the lagoon?

A. He told me to go out and pick up dead ducks and geese.

Q. And could you tell us, please, what you saw when you arrived at the lagoon on April 23rd?

A. Yes, sir. I went out there. I had a small tractor and trailer and tools I needed and I went out on one side and looked the pond over and I found some dead geese and then I started picking them up.

Q. Where in the lagoon were the dead geese?

A. On the east side.

Q. And do you recall about how many there were?

A. How many at that time, yes. There was twenty-six at that time.

Q. Do you know what kind of geese they were?

A. They were Canadian geese.

Q. How did you know they were Canadian geese?

A. By the coloring and everything.

Q. Had you ever seen Canadian geese before?

A. Yes, sir.

Q. How many times before?

A. Quite a few times.

Q. How did you come to see Canadian geese on other occasions?

A. I see them flying over all the time early in the morning.

Q. Did you pick up any other birds?

A. Yes, sir. I picked up ducks.

Q. Where did you pick up the ducks?

A. At the east side.

Q. And do you recall how many ducks there were?

A. There were around seven or eight or nine at that time.

Q. Were those domestic ducks? Do you know what kind of ducks they were?

A. No, sir, I don't.

Q. Were they, - what color they were?

A. No, I don't recall but I know there were different, - there were ducks.

Q. Have you ever gone hunting?

A. Have I ever went hunting?

Q. Yes.

A. Yes, sir.

Q. Did the ducks look like the ducks that you went hunting for?

A. The only time I ever went hunting ducks --

THE COURT: Ducks are ducks, aren't they, Mr. Cohen? I think when the witness says "ducks", that is what we are going to realize in common terms that that is what he means. We understand and when he says "geese", geese; "ducks", ducks. It does not matter whether he was a hunter or a non-hunter.

MR. COHEN: I was trying to assist him in specifying --

THE COURT: I think the jury can take into account the area in which the witness lives and his experience working in the outdoors and so forth. We can take all that into consideration. Let us continue.

BY MR. COHEN:

Q. Thank you. Will you tell us, Mr. Duvall, please, what did you do with the birds that you collected on April 23rd?

A. Well, I had heavy-duty plastic bags and I put them in there.

Q. And then what did you do with the bags?

A. Please say that again.

Q. I am sorry. What did you do with the bags after you put the birds in the bags?

A. I put the bags in my trailer and when I got all done, I took my trailer and my tractor up by the garbage truck and I threw them on the garbage truck.

Q. What did you do with your clothes?

A. I took my clothes at that time, - they had a laundry room where we have them washed and I took my rubber gloves. They were disposable and threw them away.

Q. Did there come another time after April 23, 1975 when you went out to that holding lagoon again?

A. Yes, two weeks later.

Q. Did anyone go with you at that time?

A. Yes, sir, my helper.

Q. And what equipment did you have with you the second time?

A. I had my tractor and my trailer and tools I needed.

Q. And what was your purpose in going out to the lagoon?

A. To pick up dead ducks.

Q. Did you find any?

A. Yes.

Q. That second time?

A. Yes, I did.

Q. About how many did you find?

A. About seven or eight.

Q. And where did you find them?

A. On the east side.

Q. What did you do with them?

A. I took them, put them in a heavy-duty plastic bag, put them onto my trailer.

Q. And what did you do with them after you put them on your trailer?

A. When I got all done checking out the pond, I took them up and threw them on the garbage truck.

Q. Do you know what the garbage truck did with them?

A. No, sir, I don't know.

Q. And back to the April 23rd, do you know what the garbage truck did with them on April 23rd?

A. No, sir.

Q. What did you do with your clothes the second time you were out there?

A. I took them back over to the laundry room to have them washed.

Q. Was there anything on the surface of the pond the second time you were at the lagoon?

A. Yes, sir. there was.

Q. Will you tell us what was on it, please?

A. They put a net over the whole pond.

Q. Would that have been in May that they put a net over the pond?

A. No.

Q. So you are a little confused. Was there any, - did you notice anything else, - anything on the surface of the pond the second time you were there in May?

A. Yes. They had guards out there. I don't know how many together, but they had guards out there with shotguns.

Q. Could that have been in May or was that in June?

A. I believe it was the last part of May, first part of June.

Q. Did you notice anything floating on the surface of the water while you were there?

A. Yes. They had some kind of aluminum foil or floats out there in the water.

Q. Do you recall specifically when the first time was that you observed those floats?

A. No, I don't.

Q. Other than the two times you told us about, did you pick up any other dead birds from that lagoon?

A. No, sir.

MR. COHEN: Thank you.

MR. ZUYDHOEK: No questions, your Honor.

THE COURT: All right. Thank you very much.
Mr. Cohen, next witness, please.

MR. COHEN: Mr. Towns.

* * * * * *

DONALD TOWNS (16 O'Brien Drive, Lockport, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Towns, what is your occupation?

A. Chemical Engineer.

Q. And for whom are you employed?

A. Work for FMC Corporation, Middleport, New York.

Q. How long have you worked for FMC Corporation?

A. This is my fifteenth year.

Q. In what capacity were you employed during April and May and June of 1975?

A. I really had two jobs at that time. I was technical manager and production manager for the Furadan.

Q. Could you tell us what your duties were with respect to the production of Furadan?

A. I really was responsible for all aspects of production. I had a supervisor working for me and about forty people.

Q. Could you take a look at Government's Exhibit Number 1 and show us where Furadan was manufactured at the Middleport plant?

A. This complex of buildings right here.

Q. Now, was it manufactured in that whole complex or just a portion of it?

A. Well, primarily the manufacturing occurs, the actual production occurs in this building here.

Q. Would you tell us, please, what Furadan is?

A. Furadan is a carbamate insecticide.

Q. And what is its purpose?

A. Primarily used on corn for control of root worms and other insects.

Q. Is another name for Furadan carbofuran?

A. Carbofuran is like a generic name for carbofuran.

Q. Is Furadan a dithiocarbamate?

A. No, it is not.

Q. In the manufacture of Furadan, are waters from the production area pumped into the large holding lagoon?

A. Only use of water would be for cleaning equipment or washing down.

Q. Could you tell us, please, what forms of Furadan are manufactured, - were manufactured at the plant in 1975?

A. Manufactured two forms. First is in a major form what we call 75 per cent base. It is 75 per cent carbofuran and the rest are inerts. The second material is what we call 4 flowable.

THE COURT: How do you spell that?

THE WITNESS: F-l-o-w-a-b-l-e, numeral 4.

BY MR. COHEN:

Q. And what is the 4 flowable?

A. 4 flowable is 4 pounds in a gallon of material, 4 pounds of active ingredients. The rest is mostly water.

Q. Could you tell us, please, how the dustless base is manufactured?

A. The carbofuran is combined with what we call clay base which is a mixture of six inert ingredients, mostly clay.

They are mixed together and they are ground to a material that is very much like talcum powder in consistency.

Q. And what is done with that material?

A. This material is shipped to the granulating plants in this country and is also shipped to granulating plants throughout the world.

Q. How fine are these grains, how fine is the material?

A. Talcum powder is a good analogy. A very fine powder.

Q. During the manufacture of the dustless base, does everything, - every grain of carbofuran become bagged, - what happens?

A. Well, a certain amount, a very small amount of dust might escape from the equipment or through the bags themselves.

Q. And what, - how did FMC Corporation clean up or recover this dustless base?

A. Normal procedure for a spill or any appreciable quantity of material that was outside the production area would be vacuum-cleaned up and then washed with water.

Q. And where would the wash water go?

A. The wash water would be collected in what we call a caustic sump to which sodium hydroxide was added.

Q. What was the purpose of adding sodium hydroxide?

A. Sodium hydroxide would cause decomposition of the carbofuran into harmless materials.

D. Towns, for Government, Direct.

Q. And how did sodium hydroxide affect the PH of the sump water?

A. Normal procedure to raise the PH from neutral which would be about seven up to ten or twelve, a minimum of ten PH.

Q. What happens to the carbofuran in the water with a PH of seven?

A. Dissolved carbofuran is decomposed very, - at PH 7?

Q. Right.

A. Very little, actually.

Q. What about at PH 10?

A. At PH 10 the dissolved carbofuran is decomposed quite rapidly.

Q. And at PH 12?

A. Even faster, probably a hundred times as fast.

Q. And what PH level was attempted to be achieved in the sump?

A. Always at least ten, somewhere between ten and twelve.

Q. From the sump, - excuse me. Did the, - is there any form of, - was there any form of that carbofuran in the sump which the caustic was unable to act on?

A. We didn't know it at the time but later studies indicate that solid --

MR. ZUYDHOEK: Your Honor, I really object to what later studies showed as being irrelevant to what was going on at the time.

THE COURT: I will sustain.

MR. COHEN: Your Honor, the part of the opening statement of the defendant was to show efforts taken by the plant.

THE COURT: I have sustained it. I did not say anything about it because the Government made no objection, but we have had activities taken by defendant here to remedy, evidently, certain situations which they believe were present. That is the old story about closing the door after the horse leaves the barn. Here we also have similar evidence. As to what happens on a particular time, it probably has no bearing on it. I will simply sustain the objection upon defendant's objection at this time.

BY MR. COHEN:

Q. I take it a later time in July of 1975 you did study the situation in the sump?

A. Yes.

Q. From the examination of the situation in the sump as it existed in July of 1975, were you able to reach any

165

conclusions as to the condition of the sump as it existed during June of 1975?

A. We did some studies where we took samples of the material that was being pumped from the sump to the lagoon. If you take a sample and analyze it as it was, you would see fairly high concentrations of carbofuran. If you filter it, take the solids out, there was essentially no carbofuran in the liquid.

Q. In other words, it was determined that there was an accumulation of carbofuran in the sump which was being pumped into the holding lagoon?

A. Yes. It was all in the solids.

Q. Could you explain to the jury why the caustic wasn't able to break down or neutralize the solids?

A. The solids, - until the carbofuran is dissolved in the water, the caustic has no effect on the solids.

Q. Now, you have mentioned that the 4 flowable was also manufactured?

A. That's right.

Q. Were there any waste waters produced in the manufacture of 4 flowable?

A. Yes. There are really two areas waste water was generated in the manufacture of 4 flow.

Q. What two areas were those, sir?

A. In the packaging and manufacturing area where the material was ground you would have a certain amount of spillage. Samples would be taken and generally just the clean-up area, there was carbofuran generated. This was washed into the sump and then returned to the product, actually used in the manufacture of the product itself and this procedure was started probably about the first of March. The second area was what we call the slurry tank. In this area we mix the ingredients, the original mixing, and this area was connected to the same system that was used for the 75 dustless base.

Q. And in other words, the slurry tank was also connected to the sump?

A. That's right. It is connected to the caustic sump.

Q. And when the slurry tank was cleaned, where did the cleaning water go?

A. When it was cleaned?

Q. Yes.

A. The cleaning water would go into the caustic sump along with the other wash-down water.

Q. Did FMC Corporation maintain a record which indicated the number of times the sump was pumped into the lagoon during April, May and June of 1975?

A. We thought this was fairly important so that we actually had this operation carried out by the supervisor that was responsible for the particular shift and he would make notes in his logbook when he carried it out about the PH, whether it was at least 10 or not and when it was done.

Q. Let me show you Government's Exhibits Numbers 9 and 10. Do you recognize those?

A. Yes. These are the logbooks I gave you during the grand jury testimony on the 23rd of July. They have my name and the date on them then.

Q. Were those logbooks made and maintained in the ordinary course of business of FMC Corporation?

A. Yes, they were.

Q. And is it the ordinary course of business of FMC Corporation to make and maintain those records?

A. Yes.

Q. And in the course of your employment in 1975 when you turned them over to me, did you have access to those records?

A. Yes.

MR. COHEN: Your Honor, I would like to move into evidence Government Exhibits Numbers 9 and 10.

MR. ZUYDHOEK: Preliminary questions, your Honor?

THE COURT: Yes.

PRELIMINARY EXAMINATION BY MR. ZUYDHOEK:

Q. Mr. Towns, with respect to the notations in those books--

A. Yes.

Q. Are there any notations that do not deal with the sump?

A. Yes. There would be notations about all operations in the Furadan plant.

Q. Would you say that most of those records concern other operations then of the sump?

A. That is largely what is here.

MR. ZUYDHOEK: Your Honor, I do object to the introduction into evidence of the books in their entirety. If Mr. Cohen wants to go through and identify those portions relating to the sump, that's fine with me, but I don't want the entire books going before the jury, because they contain many irrelevant matters.

THE COURT: Mr. Cohen.

MR. COHEN: Your Honor, I would be pleased to have Mr. Towns review the books and indicate to the jury the frequency with which the water was pumped from the sump to the lagoon.

THE COURT: Mr. Towns, will it take you a little while to go through the books and do that?

THE WITNESS: Actually I think before the grand jury testimony I think I went through and marked most of the notations with a red mark here so that they are mostly marked.

THE COURT: Can I see those just a minute, please.

THE WITNESS: Surely.

THE COURT: I see. All right, so that they are marked already?

THE WITNESS: Yes.

THE COURT: Very well. Is that procedure agreeable to you, Mr. Zuydhoek?

MR. ZUYDHOEK: To have Mr. Towns read them out?

THE COURT: Yes.

MR. ZUYDHOEK: Yes, that is fine.

THE COURT: Fine. We will do it that way, Mr. Cohen.

THE WITNESS: Looks like the first notation here is April 21st. The logbook starts on, - I am sorry, the logbook starts on April 21st. The first notation I see here is April 24th.

DIRECT EXAMINATION BY MR. COHEN: (Resumed)

Q. There was a pumping on April 24th?

A. Yes. This is a notation by Mr. Richard Prew, "Keys to the pond gate are in your", - oh, I am sorry. That was something else. Here is a notation on, - by Mr. King. The date is April 25th. The note is, "PH of sump 10. Added one inch sodium hydroxide, PH 12 plus", meaning the PH was above 12, "Started sump pump 1:30 a.m. Shut off the sump pump 3:00 o'clock a.m. No pump water running. No lock on pump house door." Next notation here is on the 26th, also "Started sump pump", - I am sorry. "Sump PH 10. Added one inch sodium hydroxide. PH 12 plus. Started sump pump at 9:30 p.m. Shut off sump pump at 10:45 p.m. No pumps running. No lock on pump house door." The next one is on the 27th, "PH of sump 10. Added one inch sodium hydroxide. PH 12 plus. Sump pumping at shift change. Shut off at 8:45." Next one by Richard Prew, 4-28-75, "Both pond pumps off. Dump valve closed. Started sump pump at 9:15 p.m. PH 10 plus. Added one inch caustic. PH 12 plus. Restarted sump. Shut sump off at 10:45." This is May 2, 1975, by King, "Dump valve closed 3:30. Sump PH 10. Added one inch sodium hydroxide. PH 12 plus. Started sump pump 3:45 a.m. Shut off sump pump 6:00 a.m. No pond pumps running. No lock on pump house." May 3, 1975, "Pumping out sump. Check valve closed 7:35 a.m. Shut off pump 8:10." This one, May the 3rd, 1975 by

Louis Dent, "Pumping out sump." This is May 4, 1975, Richard Prew, "Both pond pumps were off. Dump valve was closed. Started sump at 10:45 a.m. PH 10-1/2. Added one inch caustic. PH 12 plus. Started sump pump. Shut off pump at 12:00." This one is Leroy Gray, May 5, 1975, "Pumping out sump at 1:00 a.m. Drain valve closed. Pump off. PH 10. Added caustic to sump. Shut off at 3:30 a.m. Pump needed to be packed and may be foot valve." This is Richard Prew on May 5th, "Restarted sump pump at 11:00 a.m. Shut off sump pump at 1:00 p.m. Turned east pond pump off. Dump valve closed." This one is May 5th, 19,- must be 1975, Leroy Gray, "Pumped out sump at 1:30 a.m. Drain valve closed. Shut off pond pump. Added caustic to sump. Completed 2:15 a.m. Started pond pump." This note is by Richard Prew on May the 6th, "Shut off east pond pump. Off at 1:00 p.m. Dump valve closed. Started sump pump. PH 10-1/2. Added one inch caustic. PH 12 plus. Shut off at 1:45 p.m." This is Leroy Gray, 5-6-75, "Pumped out sump 5:00 a.m. to 6:00 a.m. Drain valve closed. Shut off pond pump. PH 10. Added caustic. Shut off east pond pump." This is on 5-7-75, "No lock on pump house. Pump valve closed 5:30 a.m. PH of sump 10. Added one inch caustic. PH 12 plus. Started sump pump 5:45 p.m. Shut off sump pump 7:30 p.m. Started east pond pump at 7:10.

No lock on pump house door. Dump valve closed."

Q. Excuse me, Mr. Towns. Are you familiar with the other entries in the log?

A. Yes, I am.

Q. And are they as frequent as the entries which you have just been reading?

A. Yes, I believe so.

MR. COHEN: Your Honor, at this point I think we have gotten the point. I don't see any need to --

THE COURT: We do not need any comments at this time, Mr. Cohen. You just simply ask the questions and if you do not desire to have the witness continue, go ahead.

BY MR. COHEN:

Q. Thank you, Mr. Towns. Mr. Towns, was Furadan produced in three shifts?

A. Yes, three shifts seven days a week, twenty-four hours a day.

Q. Could you tell us how much Furadan sold for in the dustless base form?

A. Approximately $5.

MR. ZUYDHOEK: Your Honor, I don't understand what the relevance of the sale price of

Furadan is.

THE COURT: The price of Furadan?

MR. COHEN: Furadan, yes.

THE COURT: What is the relevancy of that?

MR. COHEN: Your Honor, it is part of the Government's theory of the case that this was the toxic substance, the principal toxic substance to the birds.

THE COURT: I will sustain the objection. I do not see what price has to do with it. Go ahead. Next question, please.

BY MR. COHEN:

Q. Do those records, - did there come a time when FMC Corporation installed Zon guns at the holding lagoon?

A. Yes. It was probably about a week after the 23rd.

Q. Did the supervisors of the Furadan shifts have any responsibility with respect to those Zon guns?

A. Yes. Initially they would go out and start the guns up first thing in the morning.

Q. Did you see entries in the book with respect to whether or not they carried out their responsibilities with respect to the Zon guns?

A. I am sure there are occasional entries in here. I am not sure whether it was done every day.

MR. ZUYDHOEK: Your Honor, I wish we could caution the witness to just answer as to what he knows rather than what he guesses.

THE COURT: If you ask about the record, Mr. Cohen, then you should stick with the record.

BY MR. COHEN:

Q. Does that record indicate the --

THE COURT: Mr. Cohen, please. You have the record there. Do you want him to refer and read from a particular part?

MR.COHEN: Yes, your Honor.

THE COURT: All right. You are aware of the part. Why don't you indicate.

BY MR. COHEN:

Q. Your Honor, I am going to continue with another line of questioning while those portions of the exhibit are examined. Directing your attention to April 1975, did there come a time when you were out at the holding lagoon during April 1975?

A. Yes, several times.

Q. Did there come a time when you discovered any dead birds during April of 1975?

A. Yes. It was about two weeks before the 23rd of April. I was out to the pond checking on the integrity of the dike and I saw five dead birds in the water at that time.

Q. Do you recall what kind of birds they were?

A. There were two of one kind and three of another. They were geese and ducks.

Q. Where at the holding lagoon were you when you made those observations?

A. This would be on the west side of the lagoon.

Q. And where were the dead birds?

A. They were in the water along the west bank in the water.

Q. When you saw those dead birds, did you make a further search of the lagoon at that time?

A. No, I did not.

Q. What did you do?

A. I was a little bit concerned. I couldn't tell how long the birds were in the water, whether they had been in there just a few weeks or whether they had been in there several years, so I wanted to have them removed to see if they were recently killed birds.

Q. And how did you go about this?

A. I talked to Julius Antonucci and asked him if he could have one of his grounds keepers remove the birds.

Q. At that time did you know who Mr. Antonucci was, at the time you discovered the birds?

A. I am sorry, I don't understand.

Q. On the day you discovered the five dead birds did you know who Mr. Antonucci was?

A. Where he was or who he was?

Q. Who he was.

A. Who he was, yes.

Q. When did you speak to Mr. Antonucci?

A. Probably about 10:00 o'clock that morning.

Q. That would be what morning?

A. It would be the 23rd of April.

Q. What did you do between the time you discovered the birds and the time you spoke with Mr. Antonucci?

A. Well, there were a number of things, but I didn't do anything about the birds.

Q. Okay, thank you, and did you later, - what did you ask Mr. Antonucci to do on the 23rd?

A. I asked him to have one of his grounds keepers pick up the five birds I had seen in the water.

Q. Were you out at the lagoon between the time you first saw the five ducks on the 23rd?

A. Not that I recall.

Q. After the discovery of birds by Mr. Towns, - excuse me, by Mr. Duvall on the 23rd, did you initiate any steps with respect to alleviating the condition of dead birds at the lagoon?

A. That afternoon I found out about the birds about 4:00 or 5:00 o'clock, at least the number of birds, and I asked, - well, I actually talked to Mike Heally about it.

Q. Who is Mr. Heally?

A. He is Safety Director at FMC in Middleport. He suggested we bring a boat out and put it in the water, it would help scare away the birds, so I asked him to bring it in the next day.

Q. And was that done?

A. Yes, it was.

Q. Was an employee stationed full time in the boat?

A. Not in the boat, no.

Q. How did you use the boat to help scare the birds away?

A. Well, we just anchored it in the water.

Q. Were any other steps taken to try and keep birds from going to the lagoon?

A. That day was the 23rd. Mr. Cole, the plant manager, was out of town that day and the next morning I reported the finding of birds to him.

Q. And after that, do you know whether or not any steps were taken?

A. Well, quite a number of steps were taken. The first one was the installation of styrofoam floats.

Q. Who initiated these steps?

A. Mr. Cole.

THE COURT: The PH in the lagoon, would you attempt to keep the PH in the lagoon up between 10 and 12 or what --

THE WITNESS: There was no attempt to keep the PH that high. In fact, it was probably impossible to do in that lagoon.

THE COURT: As far as the lagoon was concerned, did you make tests of what the PH in the lagoon was? Would that be done?

THE WITNESS: We measured it occasionally because part of our discharge permit requires us to measure the PH in the discharge water and the PH in the lagoon is probably about six and a half.

THE COURT: Your discharge permit, what did that require as far as discharge from the lagoon to the neighboring stream? What was that, Jeddo River?

THE WITNESS: Yes, Jeddo Creek; it is a very small stream there.

THE COURT: What was the discharge permit as far as the PH, about six and a half or seven?

THE WITNESS: There was probably a range of, say, six to eight. I don't remember the exact numbers. Fairly constant.

THE COURT: Because if you had a high PH going into the stream, that would have a --

THE WITNESS: Well, PH --

THE COURT: A very bad effect upon wildlife also?

THE WITNESS: That's right.

THE COURT: And plant growth?

THE WITNESS: Certainly, yes.

BY MR. COHEN:

Q. Let me show you Government's Exhibit Number 9 and let me refer you to those entries where I have --

THE COURT: What is 9, please?

MR. COHEN: The logbook, the Furadan logbook.

THE COURT: We have looked at this before?

MR.COHEN: Yes, your Honor.

THE COURT: All right.

MR. ZUYDHOEK: Your Honor, before he starts reading them out loud, I would like to see what he is going to show him.

THE COURT: Mr. Cohen, why not show Mr. Zuydhoek what you intend to have the witness read.

MR. ZUYDHOEK: Thank you, Mr. Cohen.

BY MR. COHEN:

Q. Let me show you at the page in the log for May 30, 1975 and entry Number 5. Could you read that to the jury, please?

A. "5, turn Zon guns on at 10:00 a.m."

Q. Let me show you an entry in the journal for May 31, 1975, entry Number 3.

A. "Zon guns turned on at 10:00 a.m. Change propane tanks on the gun at south end of the pond."

Q. And then let me show you an entry in the journal for June 4, 1975, Entry 2.

A. "Keys to --"

Q. Not that part. The part with respect to the Zon guns.

A. "Turn Zon guns on at 11:00 a.m."

Q. And then let me just show you a reference in the journal for June 7, 1975.

A. "Guns turned off at 2000 hours."

MR. COHEN: Thank you.

THE COURT: These devices, when you say "guns", they are like horns that make a loud clacking abrasive noise. Is that the Zon gun?

THE WITNESS: No. They really create a small propane explosion much like a shotgun.

THE COURT: Like a shotgun.

THE WITNESS: That is what it sounds like, yes.

MR. COHEN: Thank you, Mr. Towns. Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. Maybe if you would look through those books, Mr. Towns, and let me know when the first reference is to Zon guns. I am sorry. Maybe I can help you. I am just, - see if there is anything before the one I pointed to.

A. Well, there is a reference on the previous page. I am not sure this is the first one.

Q. Okay. Then will you see if there is anything before that?

A. It probably is the first one here.

Q. Why do you say it probably is the first one?

A. Well, the guns, - as I remember the guns were brought in on a Friday afternoon so they were put on and run overnight the first couple of nights and the next morning the Sheriff came in so I remember that quite well. There's a reference here to the Sheriff being in.

Q. And what is the date where the Sheriff was in?

A. This would be May 22nd.

Q. Did you speak to the Sheriff or did someone else at the plant?

A. No, I didn't. I believe Mr. Cole spoke to him.

Q. All right. We will take that up with Mr. Cole then, so you would anticipate that the Zon guns were put in either on the 22nd or very shortly before then?

A. Yes. I don't remember what day the 22nd was but I would say it would be the Friday before the 22nd, whatever date that is.

MR. COHEN: Excuse me, the 22nd of what month?

THE WITNESS: May.

BY MR. ZUYDHOEK:

Q. Did you ever meet with Mr. Lisenbee?

A. Yes, several times.

Q. Do you recall the day, the first day that Mr. Lisenbee was at the plant that you met him?

A. I'm not sure whether I met him the first day he was there or not but very soon after the 23rd I met him.

Q. Very soon after the --

A. 23rd of April.

Q. Well, we will pin that down later. In connection with Mr. Cohen's questions to you concerning the manufacture of the dustless base, is that a, - is there a waste water generated from that manufacturing process?

A. Not from the manufacture itself, only through the clean-up operations.

Q. So there is no waste water produced in the manufacture of the dustless base?

A. That's right.

Q. Is there waste water generated from the production of dithiocarbamate?

A. Yes, quite a bit. About 20,000,000 gallons a year.

Q. Could you point out on Exhibit 1, please, where the dithiocarbamates are manufactured?

A. It starts in this area here. It is manufactured in this building and in this building here.

Q. And would you point out on Exhibit 1 where the waste water goes from the manufacturing site on the dithiocarbamates?

A. Waste water, after the filtration, is put in this pond here and this holds about two or three days' waste water. When this pond becomes full, it is pumped through this line up into the larger lagoon here which will hold about six months' water.

Q. Now, what is the purpose of holding the six months' worth of water in the large lagoon?

A. Dithiocarbamate waste water includes ammonium sulphate. Ammonium sulphate particularly when the PH is above 7 is quite toxic to fish and so the reason for this was to discharge the waste water at a time that it would not harm the fish.

Q. And at what period of time would that be?

A. Usually discharge starts in the late fall, October, November, and continues into late spring, maybe May or early June.

Q. Would that coincide with the receiving waters being relatively high?

A. Yes. We like to have a dilution of at least one hundred to one.

Q. One hundred of what to one of what?

A. One hundred gallons of water to one gallon of waste water.

Q. So it is one hundred gallons of receiving water to one gallon of water coming out of the large lagoon?

A. That's right.

Q. I am also a little bit confused as to the term "carbamate". Is Furadan a carbamate?

A. Furadan is one of a large number of organic chemicals that are called carbamates, yes.

Q. And I suspect from the name of it that a dithiocarbamate is also a carbamate, is that right?

A. That's right. It contains sulpher.

Q. In the terminology that is used by the plant, are Furadan and the dithiocarbamates referred to in the same way?

A. Normally Furadan wouldn't be referred to as a carbamate in the plant. Just the dithiocarbamates are called carbamates.

Q. Leaving aside how it is referred to in the plant, Furadan is a carbamate?

A. That's right.

Q. Technically?

A. Yes.

Q. Now, you also mentioned something about the caustic not dissolving carbofuran in its solid form. Do you recall that testimony?

A. Yes, I do.

Q. When did you ascertain that that had been occurring?

A. That was probably late May, early June, 1975.

MR. ZUYDHOEK: Thank you, Mr. Towns.

THE COURT: Anything else, Mr. Cohen?

REDIRECT EXAMINATION BY MR. COHEN:

Q. Just do you know how large that lagoon is, the large holding lagoon?

A. It is between eleven, - ten and eleven acres.

Q. And what is the capacity of the sump at the carbofuran manufacturing?

A. It starts at about seven hundred fifty, maybe a thousand gallons.

Q. And whenever the sump was pumped into the large holding lagoon, was it full every time?

A. The sump itself?

Q. Yes.

A. It would usually be, yes.

MR. COHEN: No other questions. Thank you.

THE COURT: All right. Thank you very much, Mr. Towns. We will take a brief recess, ladies and gentlemen. We will come back at quarter to and we will be in recess.

(Recess taken at 11:30 a.m.)

* * * * *

PROCEEDINGS: After recess, 11:45 a.m.

APPEARANCES: As before noted.

(Jury present.)

THE COURT: Mr. Cohen, when you are ready.

MR. COHEN: Yes, your Honor.

WILLIAM C. COLE, JR. (430 West Center Street, Medina, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Cole, what is your occupation?

A. I am the Plant Manager of the Middleport Manufacturing Facilities of the FMC Corporation.

Q. How long have you been Plant Manager?

A. Since September 1, 1974.

Q. What are your responsibilities as Plant Manager?

A. Basically I am responsible for the safe, legal and efficient operation of the manufacturing facilities.

Q. Let me direct your attention, - excuse me. Does the FMC Corporation manufacture carbofuran?

A. Yes, sir, it does.

Q. Let me direct your attention to Government's Exhibit

Number 12. Do you recognize that exhibit?

A. Yes, sir.

Q. How do you recognize that?

A. This has several marks and notations I made on the list.

Q. Can you tell us what that exhibit is, please?

A. Yes, sir. It is a list of pesticides that are manufactured and/or processed at the Middleport Manufacturing location.

Q. And who put the capital "M's" on that exhibit?

A. I did.

Q. Okay, and what do they indicate?

A. These indicate the pesticides that we manufacture at the location.

Q. And that was as of May 1975?

A. Yes, sir, that's correct.

Q. Thank you. Mr. Cole, could you tell us, please, what the purpose of the large holding lagoon is at the FMC plant?

A. Yes, sir. The primary purpose of the holding lagoon was to hold the waste water from the dithiocarbamate manufacturing facilities. It was to permit controlled discharge of the waste water into Jeddo Creek.

Q. Did you have, - did FMC have a permit in 1975 permitting discharge from that holding lagoon into the Jeddo Creek?

A. Yes. There was a permit issued to us in, I believe, October of 1974 by the EPA.

Q. When could the discharge be made?

A. The permit --

Q. Under the terms of that permit?

A. There was no specified time in the permit. According to the permit, it permitted year-around discharge.

Q. Did FMC discharge between April 23rd and June 25, 1975?

A. Some of that time, yes, sir.

Q. Did there come a time during the spring of 1975 when you became aware of the existence of dead birds at the holding lagoon?

A. Yes, I did.

Q. Prior to the spring of 1975 had you become aware of the toxicity of the water in that holding lagoon to other forms of wildlife?

MR. ZUYDHOEK: Objection, your Honor. Irrelevant.

MR. COHEN: Your Honor, that is not irrelevant. This is a charge which deals with the deaths of migratory birds, a form of wildlife. If they were aware of the danger --

THE COURT: Overruled.

THE WITNESS: Would you repeat the question, please.

BY MR. COHEN:

Q. Prior to the spring of 1975 were you aware of the toxicity of the water in the lagoon to other forms of wildlife?

A. Yes, sir. In October, the first week of October, 1974, we had a fish kill along the creek, the Jeddo Creek bed. Johnson Creek was its name. This was attributed, - we did some analysis and it was attributed to our waste water from this lagoon.

Q. At the time you did the analysis of the waste water of the lagoon, did you do an analysis for carbofuran?

A. No, we didn't.

Q. Why not?

A. We saw no reason to at that time.

Q. Let me show you Government's Exhibit Number 13. Did FMC Corporation have a permit in effect in the spring of 1975?

A. Yes, sir.

Q. Are you familiar with the contents of that permit?

A. Fairly familiar, yes.

Q. Is Government's Exhibit 13 a copy of the permit with the exception of the handwritten, - handwritings in there?

A. Yes, sir. This is a copy of the permit.

Q. And is that permit your authorization to discharge under the National Pollutant Discharge Elimination System? What is the purpose of the permit?

A. The permit is to set limits on various pollutants as to the amounts that can be discharged into navigable waterways.

* * *

Q. Thank you, thank you. Mr. Cole, does the permit mention or establish any limits for carbofuran?

A. No, sir, it does not.

Q. Mr. Cole, let me show you Government's Exhibit Number 14. Mr. Cole, did FMC Corporation apply for a permit to discharge into the navigable waters?

A. Yes, sir, it did.

Q. Is Government's Exhibit 15 a copy of that permit?

A. To the best of my knowledge it is.

MR. ZUYDHOEK: That is 15?

MR. COHEN: Yes, that is 15.

THE WITNESS: 14.

BY MR. COHEN:

Q. Excuse me, Government's Exhibit 14. Did that permit point out the manufacture of carbofuran?

A. Yes, it did.

Q. Did it point out carbofuran as a possible pesticide which would be discharged into the navigable waters?

MR. ZUYDHOEK: Same objection with respect to that question, your Honor.

THE COURT: Yes; overruled.

THE WITNESS: No, sir, carbofuran was not mentioned in the waste water numbers.

BY MR. COHEN:

Q. When was that permit first submitted?

A. The date on here is June 16, 1971.

Q. And were there updates of that permit and the information on that application from 1974?

A. I do not know.

Q. Could you just take a look at it and let us know?

A. I believe there has been, - it appears as though there were some revised values submitted on February 15, 1974.

Q. Did the permit indicate the pipeline between the dithiocarbamate holding pool and the large holding pool?

MR. ZUYDHOEK: Your Honor, I don't believe he means the permit.

BY MR. COHEN:

Q. Excuse me, the application indicate the pipeline between the dithiocarbamate holding lagoon and the large holding lagoon?

MR. ZUYDHOEK: As now stated I object to the question.

BY MR. COHEN:

Q. Let me ask that in a different form. Did the permit show the pipelines between the Furadan production facility and the large holding lagoon?

MR. ZUYDHOEK: I object to the form. I object to the question.

THE COURT: Overruled.

THE WITNESS: There is a sketch map attached to the application and there is no line shown between the Furadan building and the holding lagoon.

BY MR. COHEN:

Q. How long has Furadan been manufactured at FMC's Middleport facility?

A. Since approximately 1969.

Q. How long have the wash-down clean-up procedures been used at the facility?

A. I do not know.

Q. Were they in use at the time you became plant manager?

A. Yes, they were.

Q. And when was that?

A. September 1, 1974.

Q. Are you aware of any tests prior to 1974 of the water in the holding lagoon for the presence of carbofuran?

A. No, sir, I am not aware of any tests.

Q. Did you yourself initiate any tests for the presence of carbofuran in the large holding lagoon after you became manager?

A. Yes, several times.

Q. When was that, please?

A. These would have been early in May. I don't recall the exact dates; May of 1975.

Q. Let me show you Government's Exhibit Number 11. Do you recognize that, sir?

A. Yes, I do.

Q. How do you recognize that?

A. By my signature.

Q. Could you tell us what that is, please?

A. Yes, sir. This is a letter from myself to you. It is giving the results of analysis of samples taken on May 13, 1975 and May 29, 1975.

Q. Do any of those results pertain to waters other than the large FMC holding lagoon?

A. Yes. There is one analysis that doesn't pertain to the pond.

Q. Let me give you my pen. Would you draw a line through it, please. I would like to move Government's Exhibit Number 11 in evidence, your Honor.

MR. ZUYDHOEK: No objection, your Honor.

THE COURT: All right. It will be marked in evidence.

(Government Exhibit Number 11 received in evidence.)

BY MR. COHEN:

Q. How large is the holding lagoon?

A. Area-wise it is approximately ten acres, holds about twelve million gallons.

Q. In the wash-down procedures from production of carbofuran, where is all the water from the sump pumped?

A. To that lagoon.

Q. Does any of it, - is any of it pumped into the smaller lagoon?

A. No. It is supposed to go directly to the large holding lagoon in our northeast corner.

Q. Directing your attention to the period of April 1975, did there come a time when you learned that dead birds had been found at the FMC holding lagoon?

A. Yes, sir, there did.

Q. When was that?

A. April 25, 1975.

Q. And how did you come to learn of the dead birds?

A. Mr. Towns, the technical manager and Furadan production manager informed me of the finding of a large number of geese and ducks on the pond.

Q. What did you, - what action did you take after you learned of the findings?

A. I took no direct positive action because within two hours of the time I was told the New York State Department of Environmental Conservation appeared at the gate.

Q. What happened when the representatives of New York State appeared?

A. They came and talked to me and said they had received a complaint that there had been a bird kill on the holding lagoon. They wanted to come in and look at the lagoon and talk to me about it.

Q. Directing your attention to May 15, 1975, did there come a time that time, that day when you saw Mr. Lisenbee?

A. Yes,sir, I did.

Q. When was that?

A. This was late in the afternoon somewhere between 4:00 and 5:00 o'clock.

Q. Prior to May 15, 1975 did you take any action to alleviate the deaths, to alleviate birds coming to the holding lagoon at FMC?

A. Yes, sir. We installed between fifty and one hundred styrofoam floats on the surface of the lagoon. These floats were approximately eighteen inches by eighteen inches square and two or three inches thick. At the tops of these we had flags and we anchored them to the bottom of the lagoon.

Q. When did you do this?

A. This would have been within a week of the 25th. I am not sure of the exact date we installed them.

Q. Could it have been May 9th?

A. Yes, sir, it might have, - it would have been right around that time. It might have been slightly before or slightly after. That would be approximate, yes.

Q. Did you also see Agent Lisenbee on May 16th?

A. Yes,sir, I did.

Q. In your conversations with Mr. Lisenbee on May 15 and May 16, 1975, did you discuss steps that could be taken to keep birds away from the holding lagoon?

A. On the 15th and 16th, yes, I believe we discussed several possibilities. The one I recall at that date was the use of Zon guns which were loud propane cannons.

Q. Who suggested the Zon guns?

A. I believe it was Agent Lisenbee.

Q. And as a result of his suggestion, what did you do, Mr. Cole?

A. Through our Purchasing Department we attempted to locate some of these. We went to the places he suggested which were the AGWAY outlets, could find none very close at hand, and finally I believe on the 20th, around the 19th or 20th of May, we located some in Perry,Center, New York.

Q. Could you tell us your experience with the Zon guns?

A. We bought the guns in the morning of May 21st. We installed them late in the afternoon. My instructions were once they were set up and we figured out how they worked was to let them run from then on. The next morning at approximately 8:00 o'clock I arrived at the plant and was informed by the guard service that the Sheriff's Department of Niagara County had been in to visit at approximately 3:00 o'clock in the morning with a large number of complaints from local Middleport citizens. At the time the Sheriff entered, the supervisor shut the cannons off so that the next day, which would have been the day of the 22nd, I let the guns run and my instructions were to leave them run from sunup to sundown which at that time of year was approximately 6:00 o'clock in the morning until about 8:00 to 9:00

o'clock at night. The next morning I came in and my desk was covered with a large number of slips of paper which showed citizens in the area had again called and they were somewhat irrated by being awakened at 6:00 o'clock in the morning, so the next day I changed the times of the firings until approximately 8:00 o'clock in the morning until about 8:00 or 9:00 o'clock at night. This went on for several days until the Sunday before Memorial Day which I don't recall the date. About 10:00 o'clock in the morning I received a phone call at home from one of the neighbors in the area and he was extremely upset. He had been awakened at 8:00 o'clock when he desired to sleep in and told me that the citizens of the, - of his surrounding area were getting together and forming a petition and talking about lawsuits and so forth, so I went to his house, stood in his back yard and listened to the cannons. They would have been approximately half a mile away at the time and I agreed with him that the noise at 8:00 o'clock on a Sunday morning when you are trying to sleep would have been quite annoying.

Q. Sir, can I interrupt to ask you a specific question. Can you tell us where you had the Zon guns situated on the pond? You can use Government Exhibit 3 to point out to the jury.

A. Initially I believe we set one up in this corner facing generally northeast and we set one up on this spit of land pointing west. I think that would have been the first night. The second day we looked at this position and saw that its noise was being directed at the residential area which would have been generally in this direction, so about the second or third day we moved the cannon that was here on this side of the bank, moved this one slightly up this way and had them both point generally eastward.

Q. Did you put them above or below the dike?

A. At that time they were right on the very top of the dike.

Q. Did there come another time when you repositioned them?

A. Yes. That was that Sunday morning when the local neighbor and myself went out to the pond. We took the two cannons and brought them down inside the dike, supported them with some rocks, keeping them in about the same position. This was an attempt to use the dike itself as a noise muffler for the easterly, - westerly direction.

Q. What other adjustments did you make in the use of the Zon guns at that time?

A. At that time we also adjusted the barrels of the Zon guns to try to get them to the lowest effective noise.

There is an adjustment that can be made on the barrel that will make it louder or softer. We attempted to make it as soft as possible, yet could still be generally heard across the pond area.

Q. What frequency of firing did you set for the Zon guns?

A. I think we finally settled on about once every five minutes for each gun. We tried to alternate them. The controls on them weren't that fine that we could do it that well, but we did get them to alternate approximately every five minutes.

Q. And what times did you establish for their use?

A. General times would have been during weekdays 8:00 a.m. until dusk which would have been approximately 8:00 to 9:00 p.m. and on weekends from 10:00 a.m. until again approximately dusk and this would also apply to any holidays we would have.

Q. Directing your attention to June 1975, were there any other steps that you took with respect to measures which might alleviate the condition of birds coming to the lagoon?

A. Yes. June 13th, I believe, we started a full-time guard patrol at the lagoon.

Q. What was your experience with that guard patrol?

A. It took quite a while to get the people out there who would be conscientious enough to keep their eyes peeled on the lagoon for eight to ten hours, so we did have some problem. Agent Lisenbee informed me of one guard he had found apparently asleep. We had complaints from some of our people on guards not paying attention to what they were doing. We took the action through the card service in an attempt to get any people we found like this replaced. I think generally after several weeks we finally ended up with a force that appeared to be fairly conscientious.

Q. And that would have been in July?

A. Approximately, but the turnover was also very great on them. This job was not one of high interest. As the cold weather approached, it also was a rather undesirable job, so they had trouble keeping employees on that service.

Q. Mr. Cole, are you aware of the studies that were performed on the lagoon during May and June 1975 both by FMC and by New York State Department of Environmental Conservation and the Federal Department of the Environmental Protection Agency?

A. Which studies?

Q. With respect to the levels of carbofuran found in the lagoon?

A. Yes, I am aware of some of them, yes.

Q. Which ones are you aware of?

A. There was an analysis and bird study done by Dr. Ward Stone of the New York State Department of Environmental Conservation. He took or he received samples, or his office, his department received samples of our lagoon water. It was tested for carbofuran. He also informed me of tests that he had performed with this lagoon water on live species of waterfowl.

Q. Is it possible that the deaths of the birds was caused by carbofuran?

A. Is it possible?

Q. Yes.

A. In my opinion, yes, sir.

MR. COHEN: Thank you. I have no further questions for Mr. Cole.

THE COURT: Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. Mr. Cole, did you communicate certain information to the Environmental Protection Agency in connection with the studies at the pond Mr. Cohen was just asking you about?

A. Yes,sir, we did.

Q. I am going to show you Government Exhibit Number 15 and ask you if you are familiar with that document?

A. Yes, sir, I am.

Q. Is that the communication you referred to?

A. Yes, sir, it is.

Q. Do you recognize your signature on the document?

A. Yes, I do.

* * *

BY MR. ZUYDHOEK:

Q. Mr. Cole, I am going to show you Government's Exhibit 15. Following the sending of that letter, what further communications did you have with the governmental authorities concerning the substance of the letter?

MR. COHEN: I object, your Honor.

THE COURT: Is there another letter, Mr. Zudhoek?

MR. ZUYDHOEK: Well, your Honor, there are any number of different specific items of correspondence. I just wanted to find out generally what the follow-up was.

THE COURT: All right, generally. I will overrule the objection.

THE WITNESS: Would you repeat the question, please.

MR. ZUYDHOEK: Mr. Reporter.

(Pending question read.)

THE WITNESS: We communicated with the Environmental Protection Agency on on carbofuran and establishing limits of carbofuran for a permit.

BY MR. ZUYDHOEK:

Q. Was this in effect an arrangement worked out between FMC and the Environmental Protection Agency?

A. We did come to agreement in principal finally on limits for inclusion in the permit, yes, sir.

Q. All right. You also mentioned in that letter something here about NAOH. What is NAOH?

A. That is sodium hydroxide, otherwise referred to as caustic.

Q. And what was done with respect to NAOH?

MR. COHEN: Your Honor, I would request that Mr. Zuydhoek put that in a time frame. I object to the form of the question.

MR. ZUYDHOEK: I will rephrase it.

THE COURT: Mr. Zuydhoek, can we have the time, please?

BY MR. ZUYDHOEK:

Q. All right. Was there something done with respect to NAOH and the lagoon?

A. Do you mean following this letter?

Q. Yes, "Yes" or "No".

A. Yes.

Q. When was it done?

A. It, - some test work started just prior to this, late June. I don't remember the exact date and there was work done in July.

Q. Of --

A. 1975.

Q. And what was done in July of 1975?

MR. COHEN: Your Honor, I would like to make an objection to that on the basis that it is outside the scope of the indictment.

THE COURT: Sometime afterward now, Mr. Zuydhoek.

I will be willing to listen to argument about why we should hear about what happened in July.

MR. ZUYDHOEK: Your Honor, there have been any number of references to remedial measures that were taken both to questions by Mr. Cohen and by questions from myself. What I am trying to do at this point is to find out the specifics of those remedial measures and elaborate on some of the direct testimony.

THE COURT: I realize that, but the point is should we listen to it at all. If the events that were charged here happened earlier in May and June now as to what steps were taken in July, is that material or relevant at all to our case here?

MR. ZUYDHOEK: I think it is, your Honor. I think it relates to the very significant legal issue that still exists in this matter.

THE COURT: I will hear it and then what we will do is we will listen to motion subject to being stricken and disregarded but you make your record and we will permit you to go ahead.

MR. ZUYDHOEK: At this point, I can't remember the question, your Honor. Maybe the reporter could read it.

(Pending question read.)

THE WITNESS: We had started adding sodium hydroxide, fifty per cent liquid to the lagoon.

BY MR. ZUYDHOEK:

Q. Now, this sodium hydroxide, is that the same substance that had previously been added to the sump?

A. It would be the same substance, yes, sir.

Q. And what does the sodium hydroxide do?

A. It chemically breaks down or hydrolyzes the carbofuran to much less toxic products.

Q. And when Mr. Towns was testifying to PH's between ten and twelve, was that on the same area?

A. Between ten and twelve you have the greatest, the fastest amount of breakdown. You will get some degree of breakdown above PH's of 7. That 7, it is almost so small it is almost immeasurable. As the PH starts to rise, it gets faster and faster so there is some degradation above 7.

Q. Mr. Cole, when was the first time that you analyzed the lagoon waters for carbofuran?

A. I believe the first sample was taken on May 13, 1975.

Q. Why had you not been analyzing the lagoon water for carbofuran prior to that time?

A. Prior to that time we had no reason to.

Q. Oh, I am sorry, - I don't understand. Are you talking chemically now or are you talking in some other frame of reference?

A. I am sorry, I don't understand.

Q. All right. Why did you have no reason to analyze the lagoon for carbofuran prior?

A. We had no reason to suspect there was any in the lagoon.

Q. All right. Now, there was a fish kill that Mr. Cohen brought up in October of 1974. Why did you not analyze for carbofuran in the lagoon at the time of the fish kill?

A. Because the fish kill was attributed to ammonia.

Q. And how was that determination made?

A. This was a joint determination between the State of New York DEC and FMC.

Q. Was there a DEC investigation of some kind respecting the fish kill?

A. Yes, there was. That's what led them to us. They actually were measuring the, - I will back up a second. Their game people were told of a fish kill. Investigating the fish kill they started in the lower Johnson Creek area and worked their way back to FMC using portable ammonia monitors. This is how they actually came to us as a suspect. We analyzed, - we took samples along the creek right after the reported fish kill and found very high levels of ammonia.

Q. What were you sampling for specifically?

A. We were looking, - we were sampling for chemical analyzed and we analyzed for ammonia.

Q. And, - excuse me. I didn't appreciate the distinction there. You were looking specifically for ammonium?

A. Yes, sir, because the DEC said there were very high levels in the creek.

Q. And that's what you found?

A. Yes, sir, we did.

Q. What was done in connection, - having known of the fish kill and having analyzed and found the high levels of ammonia, what thereafter was done?

A. We entered into a consent order with the State of New York. The primary, - the largest part of this consent order was a schedule of construction of facilities that would eliminate the water pollution.

Q. And did the consent order address in any way the existence of the lagoon?

A. Yes, it did. It recognized its existence and there was actually one part of the consent order which addressed the lagoon by name and it gave a date whereby there would be no further discharge from that lagoon.

Q. And what was that date?

A. July 1, 1977.

Q. Prior to July 1st of 1977 was the lagoon prohibited to be used in any way?

A. No, sir, it was not.

Q. And the levels that were taken where you found ammonia, were those levels in the receiving waters?

A. Yes, they were in the receiving waters where the fish would be.

Q. And the receiving waters are where, insofar as the lagoon is concerned?

A. The water leaves the lagoon, goes due west. It leaves our property at the northwest corner through an eighteen-inch culvert. This eighteen-inch culvert travels approximately seven hundred feet again still due west and there it enters the Jeddo Creek tributary Number 1.

THE COURT: As I understand, there is a valve or some kind of a shutoff?

THE WITNESS: Yes, there is.

THE COURT: So that the water does not flow from the lagoon at all times but only when the valve is open?

THE WITNESS: Yes, sir. As part of the consent order with the State of New York, we developed jointly with them a discharge program whereby we tested the receiving stream for ammonia concentration, PH and temperature and then based upon the condition of the creek, we then open the valve or close the valve, depending on what the stream could bear at the time. All of this was done with a safety factor of approximately 2 on the published values of free ammonia and toxicity.

BY MR. ZUYDHOEK:

Q. Mr. Cole, at the time you were negotiating the consent order with the State of New York, the permit existed, did it not?

A. The permit was in existence, that's correct.

Q. Was there any provision in the permit respecting this staged discharge?

A. No, sir, there wasn't.

Q. What was the purpose of having the lagoon discharge at certain times and not at others?

A. Basically because receiving stream could not take the flow directly from the process at all times of the year.

There are, in fact, times of the year when the creek is actually dry so it is known as an intermittent creek.

Q. This is Jeddo Creek now?

A. Jeddo Creek, yes, sir, where we discharge, so therefore we could not discharge the levels that were in the permit at all times during the year without killing the fish. Neither could we use those levels when there was high flow in the creek. Then we wouldn't have been able to operate.

Q. The levels that you sampled for and found, were they in excess of the levels permitted by the EPA permit?

A. No, sir, they were not.

Q. So even though you were killing fish, you were not in excess of the ammonia levels in the EPA permit?

A. That's correct.

Q. What was the cost of implementing the consent order?

A. Construction is just finishing up now. There is still a few dollars not yet actually expended, but the approximate cost of the entire consent order construction was approximately $4,000,000.

Q. Now, in this letter, Government's Exhibit 15, you mention again under the heading "circumstances leading to condition", you mention, "over the last few months increased emphasis on reducing personnel exposure has led to a large increase in wash-down frequency". Do you see that reference?

A. Yes, sir.

Q. What is the wash-down frequency you are talking about there?

A. This would be the number of times or how frequently we would wash down the walls and equipment of the production area to remove any traces of carbofuran that may be available for possible exposure to personnel.

Q. This is the carbofuran or the Furadan production area?

A. Yes, sir, it is.

Q. All right. What is the effect of the exposure of the personnel to carbofuran?

A. If there is sufficient exposure, the personnel can become very sick.

Q. What are the symptoms of the Furadan sickness?

MR. COHEN: I object, your Honor. There is no indication he is aware of the symptoms.

MR. ZUYDHOEK: Well, again --

THE COURT: I think it could have a bad effect on the personnel. Do we have to go into details, Mr. Zuydhoek?

BY MR. ZUYDHOEK:

Q. I don't believe so, your Honor. When was this increased frequency implemented, Mr. Cole?

A. Basically it was started in the fall of 1974 and was gradually increased over a period of months.

Q. And when was it you said you came to the plant, the FMC plant?

A. September 1, 1974.

Q. All right. Now, what effect has the increased frequency had on the personnel exposure, the illness that you mention?

A. All I can attest to is that the increased wash-down has reduced the amount of material that would be available for exposure to personnel.

Q. All right. What has been, - since 1974 have there been more or less illnesses from exposure to Furadan?

A. Since 1974 there have been less.

Q. Are you aware of any of the statistics with respect to that?

A. Yes, sir, I am.

Q. For example, how many illnesses were there in 1974?

MR. COHEN: I object, your Honor. There is no foundation that this is not hearsay testimony.

THE COURT: I will permit it. Overruled.

THE WITNESS: 1974?

BY MR. ZUYDHOEK:

Q. Right.

A. There were approximately one hundred fifty cases of illness among FMC employees.

Q. Now, does that mean one hundred fifty individuals?

A. No. It would be one hundred fifty cases. Some individuals may have had more than one exposure.

Q. How many employees are there at the Furadan plant?

A. There is between fifty and seventy-five counting direct support personnel, which is maintenance.

Q. Now, in 1975 what would the figures have been for Furadan illness?

A. Sixty-nine.

Q. 1976?

A. Twenty-nine.

MR. COHEN: I object, your Honor, to 1976.

THE COURT: All right. I will overrule it.

BY MR. ZUYDHOEK:

Q. What was the figure for 1976?

A. Twenty-nine.

Q. And so far in '77?

MR. COHEN: Objection again, your Honor.

THE COURT: Overruled.

THE WITNESS: I believe it is six.

BY MR. ZUYDHOEK:

Q. Mr. Cole, what is cholinesterase?

A. Cholinesterase is an enzyme found in the blood of most animals. It is an enzyme that controls or it helps control and operate the nervous system of the animal.

Q. Is it found in the human blood?

A. Yes, sir, it is.

Q. Is it found in insects' blood?

A. To the best of my knowledge it is, yes.

Q. How does Furadan work on cholinesterase?

A. It acts by a method known as inhabitation. It is actually a chemical reaction in the blood stream of the animal and by this inhabitation it does not allow the enzyme to operate and thus then does not allow the nervous system to operate properly.

Q. I think somewhere in here there has been testimony that Furadan is among other insects designed to adversely affect the corn root worm.

A. Corn root worm is a target insect for Furadan, yes,sir.

Q. What do you mean by a target insect?

A. It is one that, - by "target", it is one that has been registered and proved for use by the Environmental Protection Agency.

Q. That is the United States Environmental Protection Agency?

A. That is correct, yes.

Q. Are there other uses that are registered, - other insects that are registered for Furadan?

A. Yes, there are quite a few insects it is registered for. The primary registration is for a crop, a dosage on that particular crop and then the target insect for that crop.

Q. So that I understand it, the EPA, the Environmental Protection Agency requires that Furadan be registered?

A. Yes, it does.

Q. And it requires that it be registered for specified uses?

A. That's correct.

Q. In specified amounts?

A. That's correct.

Q. For specified insects?

A. That's correct.

Q. I am going to show you, Mr. Cole, Government Exhibits, - Government Exhibit 11, and it has been previously identified as a letter you wrote to Mr. Cohen. On that letter you mentioned that you made an analyses of water samples taken on May 13th and May 29th, is that correct?

A. Yes, sir, it is.

Q. And the first seven analyses were taken from the lagoon?

A. That's correct.

W. C. Cole, Jr., for Government, Cross.

Q. Now, is that the first testing that was done for carbofuran at the lagoon?

A. To the best of my knowledge it is, yes,sir.

Q. And if the sample was taken on May 13th, would you know as of May 13th that the carbofuran existed?

A. Would I or did I?

Q. Well, how long did it take you to test the sample and find out what the levels were?

A. I don't recall exactly. This analysis, I believe, was performed by our own control lab and we had to work on the procedure since our people were not intimately familiar with it and the exact day that we received the results of this analysis I am not sure. I believe it was three to five days later.

Q. Okay. Now, there has been a lot of testimony with respect to people coming in and Mr. Lisenbee, Mr. Stone, Mr. Harris, Mr. Ferscht and others, Mr. Martin, for example. When was your first discussion with any of those people respecting carbofuran?

A. To the best of my knowledge the first discussion of carbofuran as a possible contaminate and a possible cause of death was on the 29th of May.

Q. 29th of May. Now, of course, there would have been a discussion with Mr. Harris earlier where you disclosed to him that carbofuran was manufactured?

A. Yes, that's correct.

Q. But you did not discuss with Mr. Harris the possibility that carbofuran could be the cause of the bird death?

A. I don't recall discussing carbofuran.

Q. And your best recollection of that discussion is on May 29th?

A. M[illegible] first recollection of discussing carbofuran as a possible cause of death was on May 29th.

Q. With whom was that discussion?

A. There were several later that day. Dr. Ward Stone, Assistant U. S. Attorney Cohen, Paul Ferscht, Pat Martin. I think at least four or five others. I don't recall their names at this point.

Q. Do you recall any previous discussions as to any other possible contaminate which would have been causing the bird death?

A. Yes, we, - there was several discussions with different personnel. I believe the first one was on April 25th which would have been the day that the DEC came in, Paul Ferscht.

Q. Paul Ferscht?

A. Yes, sir.

Q. Had you known Mr. Ferscht?

A. Yes, sir. I had dealt with him and known him since early October 1974.

Q. Since the time of the fish kill?

A. Yes.

Q. Did you get to know Mr. Ferscht as a result of the fish kill?

A. That was the first time I met him, yes.

Q. What were the contaminates you discussed with Mr. Ferscht?

A. I can recollect talking only about ammonia or zinc and we discussed that possibility. Neither of us had direct knowledge of what the toxic limits were for birds, so at that point neither of us continued, but these were the only two mentioned at that time.

Q. You had some experience with toxic limits for fish?

A. For fish, yes.

Q. But none for birds?

A. Right.

Q. When was your next discussion concerning possible contaminates with any person from a governmental agency?

A. To the best of my knowledge the next time was early May when Mr. Harris was in. I believe that was May 7th.

Q. And what specific contaminates do you recall discussing with Mr. Harris?

A. I believe at that time we talked about ammonia, zinc and also arsenic.

Q. Was there some kind of arsenic production going on at the plant at that time?

A. At that time, no, sir.

Q. Why was arsenic discussed?

A. Arsenic was discussed because the permit that we had from the EPA contained arsenic in our limits and we have produced arsenic compounds at the plant for some twenty or thirty years. Now, in that practice of producing the arsenicals we took the sludge from this production and buried it on the property. This is why we have arsenic in our run-off surface water so we discussed the possibility of the arsenic contamination of the lagoon.

Q. Anything you recall other than ammonia, zinc or arsenic with Mr. Harris?

A. We discussed, I think, generally why the lagoon was there and how material got into it, how we discharged from it. Beyond that there was very little discussion. Most of the time was spent in walking the property, especially the lagoon area, and taking samples.

Q. All right. What is your next date of recalling any discussions with governmental personnel concerning what could be the cause of bird deaths?

A. I believe May 16th was the next time in discussing, talking with Agent Lisenbee.

Q. This would have been the second day that Agent Lisenbee was at the plant?

A. Yes, sir.

Q. And what elements or contaminants did you discuss with Agent Lisenbee, if you recall?

A. I don't recall exactly. I would rather not say since I can't recall exactly.

Q. All right.

A. I believe it was ammonia.

Q. Do you remember discussing the fish kill with Agent Lisenbee?

A. It may have come up. I don't remember.

Q. All right. What is the next recollection you have of a conversation concerning contaminants?

A. The next one that I can recall would be the 29th of May.

Q. And you mentioned that Dr. Stone was in on the 29th?

A. Yes, sir, he was.

Q. Do you recall how the subject of carbofuran came up?

A. I believe he raised it to me. He said that he had received samples of our pond water, had them analyzed and he verbally told me he had analyzed them at approximately fifty parts per million of carbofuran.

Q. And what did you tell him?

A. I told him that we had just gotten back a first set of samples of our own analysis and that we were double checking them but as far as the order of magnitude, we felt we were seeing the same numbers as he was.

Q. Now, a source of carbofuran would be what?

A. The carbofuran plant.

Q. And the carbofuran plant, looking at Exhibit 1 is designated there as Building Number 70?

A. Yes, sir.

Q. And the map, the northerly direction going straight up, and straight out of Building Number 70 there is a line and what is that line, a pencil line in a northerly direction?

A. I believe that pencil line represents the pipeline running from the sump which is the square box apparently designates. It would be an underground pipeline running out to another pipeline and then, - well, that is that line. That would be it.

Q. Then there is another pipeline running west and east, the easterly terminating point of which is in the lagoon, right?

A. That's correct, yes.

Q. And what is the westerly terminating point of the pipeline?

A. That's a small holding pond.

Q. That you described. Thank you.

THE COURT: Mr. Zuydhoek, can you just wait a minute. All right, Mr. Zuydhoek, when you are ready.

BY MR. ZUYDHOEK:

Q. After May 29th what was done respecting the study of carbofuran?

A. In what regard?

Q. Well, for example, on the sump pump.

A. Well, once we had obviously determined that there was carbofuran in the pond, the next action was to determine how carbofuran got there, so a study was started on the sump including analysis. I believe Mr. Towns described that in his testimony.

Q. When was that analysis completed, do you know?

A. Sometime in June. I don't recall exactly when it was.

Q. All right. What alternatives to the sump system were available as of May 29th?

A. As of May 29th the, - really the only alternative, - well, there were two alternatives. Number one would be to stop wash-down. The other would be to discharge directly without going through the holding lagoon.

Q. Directly to where?

A. To Jeddo Creek. Neither of these in our opinion were acceptable.

Q. So what was done then?

A. A number of things were started. A filter was installed at the sump since we determined that the real cause of the problem was the high amount of solids in the sump that were not dissolved and being reacted so we installed filters to remove these prior to pumping to the lagoon. We also started expediting installation --

MR. COHEN: Your Honor, I would like to make an objection as to indicating a time when these acts occurred.

THE COURT: When were you doing this?

BY MR. ZUYDHOEK:

Q. The filter, Mr. Cole, when was the filter?

A. I don't remember the exact date of installation. The filter project was instigated right after the 29th. I don't recall the exact date of completion of it.

Q. And you mentioned carbon treatment. What was that all about?

A. Carbon treatment was alluded to briefly in the letter to Mr. Curry. This involves a system whereby this sump water would not be caustic treated, but would be filtered. Carbon treated and then reused.

Q. When you had, - you had a schedule lagoon emptying date of July 1, 1977. What was prior to the time the birds died, - what did you intend to do with the sump system in light of the fact that you were going to shut down the lagoon?

A. We had a number of thoughts in mind. This was one of the options.

Q. The carbon treatment?

A. Carbon treatment, yes, sir, was one of the options.

Q. Now, was a decision made following May 29th with respect to the carbon treatment system?

A. Yes, sir. That option was selected at that time.

Q. And was the carbon treatment ultimately installed?

A. Yes, it was.

Q. When would that have been?

A. It went into operation right around the first of October in 1975.

Q. Now, on your direct examination Mr. Cohen went over extensively with you the remedial measures concerning the guards and the Zon guns and I don't want to get into that, but I am interested in your conversation with Mr. Lisenbee concerning the Avalarms. Do you remember talking with Mr. Lisenbee in that regard?

A. Yes, sir. This was on one of his visits in early May. He discussed a noise device that he had heard was used with some success by farmers. At that time he did not recommend to me a brand name Avalarm. He did mention noise makers.

Q. And after that conversation, what was done by FMC?

A. We investigated what the possibilities were of these, were there any commercially available, and we located this

Avalarm system.

Q. When was the decision made to get the Avalarms?

A. As soon as we had the price.

Q. Do you recall when the price was obtained?

A. I believe it was late June. Exactly when I am not sure.

Q. Now, Mr. Lisenbee also mentioned a net. Do you recall discussing with him the net?

A. Yes, sir. We discussed quite a number of times the fact that one of the better solutions as far as birds would be to separate birds from the pond by placing a covering over it such as a net. We also discussed many of the problems associated in both engineering and installation problems associated with it.

Q. What were the discussions of the problems with Mr. Lisenbee?

A. We talked about finding a net that could be self-supporting over ten acres. It had to be some way of keeping it above the water level. If it dipped into the water, obviously this would expose water to the birds, and this would be no good. It had to be strong enough to support itself from snow and ice and just how would you get this physically, take a covering so that if you could find one that big and put it over ten acres.

Q. I think Mr. Lisenbee testified that a net was put up and at the time of the installation there were some problems with it. What were those problems?

A. There were a large number of problems.

MR. COHEN: My objection as to form again. When are we talking about with respect to the installation?

THE COURT: May we have a date?

BY MR. ZUYDHOEK:

Q. When was the first time you started installing the net?

MR. COHEN: And again my continuing objection.

THE COURT: All right. That is noted, Mr. Cohen. You object and we will take up later whether we should consider it and so on.

THE WITNESS: The actual physical work on the pond area began in late July.

BY MR. ZUYDHOEK:

Q. And what physical work began in late July?

A. We actually started installing a net over the pond.

Q. Where did you get the net?

A. I don't recall exactly, but somewhere in the midwest. I believe it was a company that made plastic, - I believe polypropylene net and sold it for protection for birds primarily for farmers, orchard growers and other people who need protection from birds.

Q. Is this something you purchase off the shelf?

A. Not really. It came in 3,000 yard rolls and there were, - luckily he did have several rolls in stock and we had these sent as soon as we knew he had them and we put in the order for the rest of the material. It did arrive in time. The delivery of the net did not slow the installation down.

Q. Did the net lie on top of the water?

A. No, it did not.

Q. How was the net secured or fastened?

A. We put out in the pond itself, - we installed steel posts supported on tripods. These came up to, - they were about eight to ten feet long and then we put these at grid intersections about fifty foot grid intersections throughout the whole pond. Must have been, I would say, fifty to a hundred of these, and we stretched steel cable across the pond in east and west direction and north-south direction. Probably used, oh, three to five miles of quarter-inch steel cable. The steel cable was fastened to the tops of the dike. Then once we had this grid work installed, we put this plastic netting, actually slid the netting over this grid work, fastened it along the edges. We fastened it to the grid work and we fastened it to itself.

Q. My recollection of Mr. Lisenbee's testimony is that he said there was some problem with the wind after the net was installed?

A. Yes. There were quite a few problems.

Q. When was the first problem with the wind?

A. Almost immediately.

Q. What happened?

A. Actually the first problems occurred during installation trying to pull several hundred yards of this fabricated material across the pond gave the people quite a bit of trouble with the wind. The wind would pick it up and carry it away from them.

Q. How many people were involved in installation?

A. At any one time there was probably ten to twenty people physically working in the pond area.

Q. How were they doing it, in row boats or walking in the pond or what?

A. They were doing it in many ways. Some were wading with waders. Some were on rafts we had specially built. There was an aluminum boat we purchased and some were on the banks.

Q. Aside from problems with the wind, were there other problems with the net?

A. Quite a few. When winter started to come, the rain would turn to ice on the net, weigh it down, would tear some of it and would drag it into the water. The winter, it didn't survive either winter that it was in installation totally because of the heavy weight of the snow and ice tore most of it out, so each spring for two consecutive springs we had to go out and do a massive repair job on it.

Q. All right. Now, did you have any conversation with Mr. Lisenbee concerning the caustic treatment of the pond?

A. Of the pond. I don't recall, sir.

Q. Do you remember whose idea it was to treat the pond with caustic?

A. Initially, no, sir. It was from, - I believe it was a number of FMC people talked about how we could remove the carbofuran from the pond and one of the methods that was suggested was caustic treatment by adding caustic directly to the pond itself.

Q. And again we have heard the testimony that raises the PH in the pond.

A. Yes, it does. There is a problem, though. It is not as simple as a water solution would be. In adding caustic to the pond where there is ammonia sulphate in it, as soon as your PH starts to rise, ammonium sulphate starts to turn to free ammonia and free ammonia starts to come off as a gas. Now, once this happens, the PH then drops back again so you are fighting a multi-chemical reaction system there where ammonia is being given off as the PH is rising, and as the gas is given off, the PH drops back dow[illegible]ain, so we were fighting a constant battle trying t[illegible]e PH up high enough whereby the carbofuran co[illegible]e destroyed and not make the PH too high where the ammonia evolution would be so massive that it would create problems in the neighborhood with ammonia gas.

Q. When did you start caustic treatment?

A. That was started in, - the direct addition to the pond was started in early July, I believe it was, right around the first week in July or the second week in July, excuse me.

Q. Where did you get the caustic?

A. We purchased it.

Q. From some outside source of supply?

A. Yes, sir. We use caustic in the plant for a number of our operations and I believe this was purchased from a firm in Niagara Falls where we purchase our caustic.

Q. Do you recall when you started looking for the caustic to use?

A. We didn't have to look for it. We already had it.

Q. You had it, all right. How was it put into the pond?

A. We had a tank truck driver come to the plant and we drove it up onto a roadway that was actually at dike top height.

The truck pulled up, a hose was attached to it, the hose was put in the pond and the valve was opened and gravity fed into the pond.

Q. What was the size of the tank truck?

A. Approximately 4,000 gallons.

Q. How many loads did it take?

A. Before we were treating the pond it took about ten loads of caustic.

Q. 40,000 gallons?

A. Approximately, about a half million pounds we calculated.

MR. ZUYDHOEK: Thank you, Mr. Cole.

REDIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Cole, what was the PH of the lagoon before adding the caustic in July?

A. Somewhere between about 6.2 to about 6.8.

Q. And what is the breakdown of carbofuran at that PH?

A. Chemical breakdown is so slow it is not even measurable.

Q. Directing your attention to Government Exhibit Number 12, how many pesticides on that list were actually manufactured by FMC Corporation during May 1975?

A. During May 1975?

Q. Yes.

A. I would not know without referring to my production sheets. The only one that I am sure of would be carbofuran. We do not manufacture all the products at all times during the year. We campaign them, if you will, so what was manufactured during May, the only one I could attest to would be carbofuran.

Q. And of the products that were actually manufactured but may not have been manufactured during May, how many of those had waste waters which eventually ended up in the large holding lagoon?

A. There is five of them listed here. Do you want me to read them off?

Q. Yes.

A. Ferbam, zineb, ziram, zinc ammonium carbamate, amban.

Q. And also carbofuran discharged --

A. Yes, sir, carbofuran. Carbofuran would not have waste water associated with its manufacture. It would have waste water as we testified with wash-down. The others would have waste water associated with the manufacture.

Q. You mentioned that Furadan made people ill; is it also possible for Furadan to kill other living things other than insects?

A. Yes, it is.

Q. And could it kill human beings?

A. We don't know. We have produced many millions of pounds of it over many years and to our knowledge there is no record of any case of a human fatality associated with

W. C. Cole, Jr., for Government, Re-direct.

Furadan.

Q. Is it possible for Furadan to kill human beings?

A. We don't know.

Q. Is Furadan available to the, - any member of the general public in New York State?

A. I don't believe so. I think, - I am not, - I know this year was the first year they had the applicators permit whereby you had to be registered in order to apply pesiticides, but I believe it was only certain size farms or certain acreage. Someone with a smaller acreage could still obtain Furadan assuming he could find it locally if enough was available. He could use it on his crops as long as it was used on a registered use.

Q. What do you mean used on a registered use?

A. It would have to be a use that was approved by the Environmental Protection Agency.

Q. What led you to analyze the water of the holding lagoon for carbofuran on May 13, 1975?

A. I believe we analyzed for it because it was one of the compounds that was handled at the plant that was a possibility that we knew could be toxic and we decided that we had to look at all the possibilities.

Q. Following the fish kill in October of 1974, how long after it had occurred did you learn about it?

A. Within twenty-four hours.

Q. How long after that did you test the stream for ammonia?

A. Again within twenty-four hours.

Q. And within that period of time, were there any additional discharges of ammonia into this stream from FMC?

A. During the test period?

Q. Between the time that you learned of it and the time that you tested.

A. I don't recall. I know we, - no, there was not. I remember because I shut the valve myself.

Q. Mr. Towns, directing your attention to Government's, - or --

THE COURT: Excuse me, Mr. Cohen.

MR. COHEN: I am sorry, Mr. Cole.

THE COURT: Mr. Cole.

BY MR. COHEN:

Q. Do you have Exhibit 15? Directing your attention to Exhibit Number 15, it indicates that on May 29th samples were also taken of effluent from the outfall 001 which consisted of controlled discharge from the lagoon surface water. Could you tell us what outfall 001 is?

A. Outfall 001 is our EPA registered discharge point from our property. It is in the northwest [illegible]er of our property.

Q. And what is that supposed to measure?

A. What?

Q. Is that supposed to represent the content of the water as it leaves FMC?

A. Yes, that is our only registered discharge point. All water from our property to a navigable waterway leaves through that one location.

Q. Now, in the next paragraph you indicate that there is a statement, "Our process discharge was diluted by a factor of one thousand to two thousand in the receiving stream indicating a maximum stream carbofuran level of .04 PPM. Was that, - does "PPM" mean "parts per million"?

A. Yes, that's correct.

Q. Okay. Was that actually measured?

A. No, sir, it was not.

Q. Did you measure the carbofuran level in the receiving stream during May and June 1975?

A. I don't recall. I don't believe so.

Q. "Since we have not observed any adverse effect upon any aquatic life in the receiving stream", when were the observations made of the receiving stream which is the basis of that statement?

A. Our personnel made traverse of a large number of places along the stream once every week to gather samples for our ammonia discharge program. At this time they also look for evidence of any fish kill or basically that is what they would be looking for is was there any fish kill.

Q. And what type, - did you have any reports before you when you made that statement?

A. There were no reports other than there were no reports of fish kills.

Q. During the installation of the net, did you have any wash-down procedures at the lagoon itself?

A. In what way, sir?

Q. Did you have anything for the individuals who were actually working at the lagoon?

A. Oh, yes, sir, we did. We installed two portable safety showers at the lagoon in two locations at the lagoon.

Q. How much carbofuran in the dustless base can be produced during a shift?

A. Do you mean then or now?

Q. Yes, then, back in 1975.

A. I have to calculate it. We make approximately 2,000,000 pounds, - could make at that time approximately 2,000,000 pounds in a month.

MR. ZUYDHOEK: Your Honor, I fail to see the relevancy of this line of questioning.

THE COURT: I will sustain the objection.

W. C. Cole, Jr., for Government, Re-direct.

BY MR. COHEN:

Q. What is the value of the carbofuran produced during any shift?

MR. ZUYDHOEK: Same objection, your Honor.

THE COURT: Sustained.

MR. COHEN: Your Honor, Mr. Zuydhoek saw fit to bring out the value of construction work.

THE COURT: I realize that. I have sustained the objection.

MR. COHEN: Thank you, Mr. Cole.

THE COURT: Anything else, Mr. Zuydhoek?

MR. ZUYDHOEK: No, your Honor.

THE COURT: Thank you, Mr. Cole. Next witness, please.

MR. COHEN: Your Honor, may I approach the bench?

(Side bar conference had off the record between Court and counsel.)

THE COURT: Ladies and gentlemen, before we proceed I should tell you this: The parties have stipulated that every bird named in the indictment is a migratory

bird which is protected by the statute.
Mr. Cohen, do you have another witness now?

MR. COHEN: Yes. Dr. Reilly.

* * * * * * * * *

EDGAR M. REILLY (Post Office Box 21, Old Chatham, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Dr. Reilly, what is your occupation?

A. I am Senior Scientist of Zoology at the New York State Museum.

Q. How long have you been so employed?

A. Twenty-five years.

Q. Do you have any specialties?

A. My specialty is ornithology.

Q. Could you tell us what an ornithologist is, please?

A. Briefly, studies birds. My interest in birds has been their origin, distribution, migration and so forth.

Q. What educational training did you have in the field of ornithology?

A. I have a PhD from Cornell University in Ornithology.

Q. Under whom did you study?

A. Dr. Arthur A. Allen.

Q. What practical experience have you had in the field of ornithology and bird identification?

A. I have been interested in birds, identifying them throughout most of my life. I traveled throughout much of the United States and, of course, considerably in New York State working with birds.

Q. Have you had any experience in foreign countries?

A. Yes. I have been in every country but, - every continent but Africa.

Q. What professional societies are you a member of?

A. The Wilson Ornithological Society; the American Ornithological Union; the American Association for the Advancement of Science.

Q. Have you ever written any articles or books relating to birds?

A. I have written the Audubon Illustrated Handbook of American Birds published by McGraw Hill in 1968. Many popular articles, some short and scientific notes in various bird journals.

Q. Do bluejays migrate?

A. They certainly do.

THE COURT: Excuse me. I thought we had a stipulation so why are we going to go over it? Are we going to go over all these birds now?

MR. COHEN: No, we are not. They are not charged in the indictment. It was a question asked by Mr. Zuydhoek of Mr. Lisenbee yesterday, your Honor.

THE COURT: If it is not in the indictment, I do not see what the relevancy is. Let us stick to the things that count in the case.

BY MR. COHEN:

Q. Let me show you Government Exhibit 3547. Without showing them to the jury at this time --

THE COURT: Excuse me. Mr. Zuydhoek, can you come up, please. Mr. Cohen, come up.

(Side bar conference had off the record between Court and counsel.)

THE COURT: Just show the witness the bird. Go ahead, Mr. Cohen. I will overrule the objection. We will look at two birds, Mr. Cohen, because I believe, ladies and gentlemen, it is not necessary in this case to bring in all the birds that we have here because we have testimony about what happened; we had the description of the birds; we have the stipulation that they are migratory birds protected by the Treaty, but so that perhaps for some explanation it may be helpful for you to have some idea of what is involved and Dr. Reilly is here to help us for that purpose. Mr. Cohen.

BY MR. COHEN:

Q. Could you tell us what Government's Exhibit Number 3547 is?

A. They are scientific specimens which are kept in museums for the study of birds. They are scientific specimens of actual birds.

Q. Could you show the jury, please, Government Exhibit 3547, 24946 and 24812, please.

Q. This is a small sandpiper such as some of the birds in the indictment listed were. This is known as a Least sandpiper. It is a bird that nests in the Arctic and goes to South America and Central America, goes there to winter. This is a bird known as a hooded merganser which is a fish-eating duck. It migrates through the state and sometimes in large numbers. It actually nests in the Adirondack areas and it moves south with the approach of ice.

THE COURT: How far south does that bird go, Doctor?

THE WITNESS: With many of the ducks it depends on the open water. If they have open water with food available, they will stop there.

THE COURT: A merganser may be a number of different places?

THE WITNESS: Yes. It may in a number of different places, yes, your Honor.

THE COURT: The sandpiper goes from the Arctic to South America?

THE WITNESS: That particular sandpiper does. The little spotted sandpiper nests around here. There are many different kinds of sandpiper. They are very confusing.

THE COURT: The one we have here, the Least sandpiper?

THE WITNESS: The Least nests in northern Canada and migrates down to Central America, winters from Panama, Costa Rica coast down to Peru and places like that.

THE COURT: Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Dr. Reilly, will you please take a look at Government Exhibit Number 3 which is here on this mounting board.

MR. ZUYDHOEK: Now, just a minute, Mr. Cohen, please. That exhibit has not been admitted. I am sorry, you were referring to Number 3. I thought you had put the other one up. I am sorry.

BY MR. COHEN:

Q. Would you put your glasses on. Can you see in Government's Exhibit Number 3, specifically in Photograph Number 8 --

THE COURT: You will have to keep your voice up, Mr. Cohen, when you are over there.

BY MR. COHEN:

Q. Can you see in Government Exhibit Number 3, specifically in Photograph Number 8, little floats in the water?

A. Yes, I can.

Q. Let me show you also Government's Exhibit Number 7 and direct your attention specifically to the subject depicted in subject Number 5 and 6. Please don't tell us what that subjects are. Well, we have testimony as to the subject of that.

THE COURT: Just ask the question.

BY MR.COHEN:

Q. Can you see the floats in sub-photos 5 and 6?

A. Yes, I can.

THE COURT: Doctor, as I understand it, you were there at the scene of the lagoon?

THE WITNESS: No,sir.

THE COURT: You were not there?

THE WITNESS: No.

THE COURT: You have heard about the floats?

THE WITNESS: I have heard about the floats.

THE COURT: They have been described to you?

THE WITNESS: They were described to me, yes.

THE COURT: All right.

BY MR. COHEN:

Q. Based on the testimony you have heard describing the floats, could you tell us what effect they would have if anything on birds?

MR. ZUYDHOEK: Objection, your Honor. I don't see the relevance.

THE COURT: I think it is Doctor's opinion about it because actually what would happen none of us can say, but your judgment about what effect they would have, that is what we are going to listen to, and for that I will overrule the objection.

THE WITNESS: They could actually attract birds.

MR. ZUYDHOEK: Now he is speculating, your Honor, and I object to it on that ground.

THE COURT: Yes. Have you seen before such objects in water and lagoons and so forth?

THE WITNESS: I have seen bodies of water where foam is floating, where some sort of plastic was floating in the water and have seen the reaction on birds of those floating objects.

THE COURT: All right. Go ahead, Mr. Cohen; next question.

BY MR. COHEN:

Q. Have you seen an operation of Zon guns?

A. I have seen it in operation in other places in the State.

Q. Have you heard the testimony about Zon guns in this case?

A. Yes, I have.

Q. In your opinion, how did Zon guns affect birds with respect to the FMC lagoon?

A. I couldn't testify directly to the FMC lagoon. There is excellent evidence that from the many wars we have had recently, that birds will often build their nest right next to the field artillery placement and the heavier gun emplacement; that bird behavior is such that their drive is to reproduce, to build their nest, and when they find out the noise isn't hurting them, they will live right next to it.

THE COURT: Were the birds nesting here, Doctor? They would not be nesting at FMC.

THE WITNESS: They wouldn't necessarily be nesting, your Honor, but it is a matter of feeding and moving through.

THE COURT: I think we ought to disregard nesting.

THE WITNESS: All right.

THE COURT: Because that is an entirely different situation, is it not, where birds, because of some reason which is difficult to understand, that some families, let us say for want of a better word, return to the same place to nest year after year after year.

THE WITNESS: Not to precisely the same place and they would set up a territory which would be normal living.

THE COURT: They would not be nesting at the FMC.

THE WITNESS: They would not be nesting here but they would be passing through the area and could get used to the noise.

THE COURT: Very well.

MR. COHEN: I have no further questions of Dr. Reilly.

THE COURT: Mr. Zuydhoek.

CROSS EXAMINATION BY MR. ZUYDHOEK:

Q. Dr. Reilly, have you ever instructed people on ornithology?

A. Yes, I have.

Q. Have you ever instructed United States Fish and Wildlife agents?

A. Not to my knowledge, unless they became agents after the instruction.

Q. Were you aware of the fact that United States Fish and Wildlife agents suggested the use of Zon guns at the FMC premises?

A. There are many suggestions made on the basis of incomplete knowledge. I am aware that such suggestions are made and I deplore a lot of them.

Q. And the one that was made in this case was deplorable?

A. I think there were better suggestions that could have been made that might have saved the company some money.

Q. Maybe we should have hired you. Have you ever investigated mass deaths of migratory birds?

A. Yes. None in a case like this.

Q. What instrumentalities can cause mass deaths of migratory birds?

A. Storms at sea blowing birds inland that were incapable of surviving in the land situation; a storm with fog and low clouds causing birds to fly at a low altitude and hitting objects such as, for example, the Empire State Building and tall buildings in many of the cities.

Q. Did you ever investigate bird deaths involving high tension power lines?

A. Yes, I have.

Q. It is not an infrequent occurrence, is it?

A. I would say that it was relatively infrequent. Those things occur when there is bad weather and we, of course, do not have bad weather every day of the year or even every week of the year or every month.

Q. Did you ever investigate mass bird deaths involving jet airplanes?

A. I have never investigated them. I have heard considerable about them.

Q. You know they occur?

A. Absolutely. I was in the Air Force.

Q. Are you aware of the fact that the most common cause of migratory bird death attributable to man anyway is the automobile?

A. I would argue with some of the figures on that.

Q. You have seen some of the figures on that, haven't you?

A. I have seen of them. There have been recent examination and tests made and these mainly take in certain birds that, for instance, have a habit of feeding along the side of roads.

Q. Migratory birds?

A. Migratory birds, yes, and not migratory.

Q. What are the numbers involved that you have seen recently?

A. They have varied from averages of perhaps in a county area in New York State, - obviously in Manhattan there are very few because birds are kept away by other factors, but let's take a county like Columbia where I live. There might be a hundred birds a day in certain seasons that could be killed by the cars, but we are trying now, the ornithologists, to get more accurate figures rather than mere guesses as most of them are now.

Q. Isn't it a fact, Dr. Reilly, that migratory birds are killed by many different instrumentalities of man?

A. I don't know what you mean by "many different instrumentalities of man".

Q. All right. We have mentioned automobiles; we have mentioned buildings; we have mentioned airplanes. What other instrumentalities of man are you familiar with that have killed migratory birds?

A. I think that would take the principal offenders.

* * *

WARD B. STONE (Box 100, East Berne, New York), a witness called by and in behalf of the Government, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. COHEN:

Q. Mr. Stone, what is your occupation?

A. Wildlife Pathologist.

Q. For whom are you employed?

A. The New York State Department of Environmental Conservation.

Q. How long have you been a wildlife pathologist?

A. For nine years. This is my ninth year. Started my ninth year.

Q. What are your duties as a wildlife pathologist?

A. Well, I am in charge of wildlife pathology for the entire State of New York and it is my job to determine why wildlife dies in New York State, so I get cases from all areas.

Q. What type of wildlife do you determine?

A. Anything from frogs to moose and birds make up about half of my cases.

Q. Where do you carry out your work?

A. Delmar, New York, the Delmar Wildlife Research Laboratory.

Q. Would you tell us what your educational background was which qualified you for your profession?

A. Well, the undergraduate and graduate training D.V.M.S. and PhD, PhD in Zoology with specialty in wildlife disease pathology. Also I went to the U. S. National Naval Medical College for fourteen months and studied clinical laboratory and blood bank and pathology there and worked on human pathology at that area. During my time in the military I took a number of medical courses such as aviation medicine, hospital food and toxin problems and this kind of thing. I forgot I also studied at Ohio State under an NSF grant and got a certificate in Acarology which is the study of mites.

Q. What is NFS?

A. National Science Foundation.

Q. What do you do to keep abreast of current problems in your field?

A. I go to some professional meetings such as the Wildlife Disease Association meetings but primarily I read virtually every day seven days a week. I go to the library. I keep up on professional journals. I read books and I do a lot of thinking and since I am in research, I have to be thinking ahead so keeping up on the literature is absolutely necessary.

Q. Could you tell us what your practical experience has been in the field of wildlife pathology?

A. Well, at this point practical experience goes back to the time I would be seventeen years old on because I am now thirty-eight. That's almost thirty-nine. Over the last twenty-one, almost twenty-two years now I have been in the field of zoology and over the last seventeen I have doing necropsies on wild animals either as a student or on, - or doing laboratory studies, work like that, even in the military.

Q. What is a necropsy?

A. Well, a necropsy is a fancy word for an autopsy and it just relates to doing it on an animal where an autopsy specifically is talking about carrying out a post-mortem on a human, but we can safely use the term "autopsy" here.

Q. Can you tell us what some of the common causes of deaths of migratory birds are?

A. The most common causes of death of migratory birds are the old ancient causes of death. They are not the automobile. They are not gunfire. We have to deal with certain species here, but over all they are mites, they are tapeworms, they are other types of parasitic worms, intestinal parasites, bacterias, viruses, baby birds being kicked out of the nest by their brothers and sisters only to fall and die on the ground of exposure; rain, wind, the snow storms and this kind of thing covering up food so nothing is available to them, a sleet storm coming on freezing up the birds and those are the most common causes of bird mortality, the ones that have always been around.

Q. Of the causes of bird mortality where man is the instrumentality, what are the more common causes?

A. Pesticides is a very important cause of mortality and we have to consider the mortality not only from the effect on adult birds and juvenile birds, but we also have to consider some of the most serious impacts on bird populations in the United States have been related to toxic pollutants. For example, the DTT and its metabolites and the PCB's and other chlorinated hydrocarbons are well known for their effect on species like ospery and the eagle at the egg stage by either causing an embryonic death or causing the eggs to be laid with such a thin shell that the parent bird in attempting to turn these eggs breaks the eggs and, of course, they unfortunately never hatch. Another important factor man related is the other pesticides, the organo, phosphate and carbamated pesticides. I have had a number of cases and I am not talking in the legal sense of cases. I am talking in the scientific sense of cases about the state. There are birds that are hit by automobiles but for most species being hit by automobiles is a very unimportant cause of mortality in most birds.

Q. Could you compare the difference between the mortality from an automobile and a mortality from a pesticide.

MR. ZUYDHOEK: Your Honor, I think the witness is getting into the area of speculation.

MR. COHEN: Your Honor, this is the individual whose life work is --

THE COURT: We had testimony about automobiles yesterday. I will overrule the objection.

THE WITNESS: Can you repeat the question, please?

BY MR. COHEN:

Q. Could you compare the difference between automobiles, - deaths from automobiles and deaths from pesticides? What are the differences in the type of effect and how you see death from pesticides as opposed to deaths from automobiles?

A. Well, automobile situations are different.

MR. ZUYDHOEK: Your Honor, I object to this for a different reason now. I don't think there is any foundation with respect to what the source of his knowledge for this testimony is and I think we should find out.

THE COURT: Maybe you can explain that in your answer. Overruled.

THE WITNESS: I have performed hundreds of necropsies on animals and on birds that have been hit by automobiles. Being hit by automobiles obviously gives them a great deal of trauma. In other words, they are very badly beat up, a lot of hemorrhage, broken bones associated when they hit on the window or they hit on the grill when they are hit with the car. It is a very traumatic kind of thing with broken bones and torn muscles and broken blood vessels and hemorrhaging. Pesticide cases are very different. One does not see all these broken bones. One often does not see much of anything. Your initial reaction in the post-mortem is that these birds are in excellent flesh. There is no real gross pathology outside of such things as respiratory failure resulting in a congestion of blood and it looks in many cases when you have a very acute poisoning that the switch of life has been kind of cut off and that a very healthy bird just had its heart cease to keep beating and you get this pulling of blood into the lungs and you contrast this with many different situations, but that is where you start and having diagnosed perhaps more bird pesticide poisonings than anybody in the United States as I have, I believe, a good track record on diagnosing these things.

MR. ZUYDHOEK: Your Honor, I object to his speculation and his belief. How does he know he has observed more than anybody else in the United States?

BY MR. COHEN:

Q. Do you know of any other wildlife pathologist --

THE COURT: Excuse me. We are not here to compare Dr. Stone with others. We are here to listen to his own testimony. We will strike that about the number of examinations made and I think, Doctor, it is best just to listen to Mr. Cohen's question and answer the question only. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Are you familiar with the birds which were killed at FMC?

A. Yes.

Q. And you are familiar with the type of birds which are killed by automobile accidents?

A. Yes, sir.

Q. Is there a difference between the types of species?

A. Yes, there is. One of the birds, a robin at FMC is not infrequently killed by an automobile and that is because they live along highways, live in suburbia, they are relatively low flying and therefore they are hit by automobiles frequently as are starlings, as are grackles, as are red wing blackbirds and pigeons.

Q. Excuse me just a minute. By that you meant robins like the one in the indictment are subject to automobile killing?

A. That is correct, but it is exceptionally rare for waterfowl to be killed by automobiles because they do not fly low and they do not generally cross highways at low levels where they can be hit, so it is very rare to have waterfowl mortalities by automobiles, but the sandpipers and that group, so-called peeps, those shorter birds, that is also exceedingly rare because they do not fly low across highways and very seldom does their habitat border on highways, so they are very rarely killed by automobiles.

Q. What about the plovers?

THE COURT: Excuse me, Mr. Cohen. Aren't we getting off into a side issue here?

MR. COHEN: Yes, we are.

THE COURT: Can we stay with the main part of this case?

BY MR. COHEN:

Q. Directing your attention to May and June of 1975, did you conduct a review of literature concerning carbofuran?

A. Yes.

Q. What literature was available for your review?

A. Well, there are a variety of a[illegible] in scientific journals. Journal of Agricultural and Food Chemistry; there were federal papers out. There was information on Furadan in a book published in 1970 ca[illegible] The Handbook of Toxicity of Pesticides to Wildlife by Tucker and Crabtree, U. S. Fish and Wildlife Service, 1970, which tells you the acute toxicity and the quantities of Furadan that will kill various types of birds and their experimental evidence for this. In addition I called California and California had a duck kill of about 2,500 birds --

MR. ZUYDHOEK: Your Honor, I object to this as hearsay, conversation, and, Dr. Stone, when I object I would appreciate your stopping testifying.

THE COURT: When an objection is made, wait until I have an opportunity to rule on it. Whatever happened in California, ladies and gentlemen, certainly has no bearing on this case at all. We do not know anything about the facts and circumstances there and we are not here to make any judgment about what happened in California. We are only here to make a judgment about this particular situation here. We would, - in order to explore the California issue would open up a whole new lawsuit, Mr. Cohen, so we will just strike the testimony about

California and, Doctor, I think we should not go into those other areas because as you can see, it would make it very difficult to try the case here. We know that this perhaps is helpful to you in your knowledge, but I think we should not go into other examples of what happened at other places. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Did you try and draw on others' experience without telling us specifically what that experience was during 1975 when you were conducting your research?

A. Yes. I contacted other pathologists.

Q. Could you tell us what carbofuran is?

A. Carbofuran is a carbamate pesticide. It has been used to kill insects. It has been used to kill nematodes, which are small worms. It has been used to kill mites. It is applied commonly for the European root corn borer. It also is applied in alfalfa for the alfalfa weevil and also it has been applied to cotton and peanuts and it has been applied here in New York State to potatoes, potato fields.

Q. Is carbofuran controlled by New York State?

A. Carbofuran is a --

Q. Excuse me. Was it controlled in 1975 by New York State?

A. Yes.

Q. What were the controls on its use?

A. It was a restricted use pesticide which means that it is considered a highly toxic pesticide which the general public cannot go to the store and obtain. One must have a permit to obtain and use it.

Q. What are the qualifications to obtain that permit?

A. An examination. You take a course from the State of New York and then you take an examination which is graded at Cornell and you get a pesticide applicator number and you can go out and purchase the pesticide and you have to keep records on what you use the pesticide for, the days you put it out, wind and weather type conditions, dosages to the land, so that we have State pesticide inspectors and they can come out and check and make sure the pesticides have been properly used and that your records are in order. It is somewhat similar to records that physicians might keep or veterinarians might keep on a controlled substance drug.

Q. Excuse me. Dr. Stone, how does carbofuran act?

A. Carbofuran or Furadan acts primarily on the central nervous system and on cholinesterase. Mr. Cole was accurate in his general consideration of cholinesterase. What actually happens is at the nerve endings the cholinesterase drops below levels and the nerve doesn't function properly. You get continuous contraction of muscles and which leads to tremors and convulsions and eventually exhaustion in the musculature which leads to respiratory failure of the muscles between the ribs and the intercostals and so on are not working. You then get pulling of the blood in the lungs and this goes with some of the symptoms or signs you see in birds or mammals that are poisoned with this and you get death if the dose is high enough.

Q. Is carbofuran toxic to other species other than insects?

A. Carbofuran is a biocide. In other words, it kills living things. It kills animal life. It is not specific to insects. It will kill protozoans, small micro-organisms in the soil, from there all the way up to a cow.

THE COURT: Mr. Cohen, can you wait a minute. Mr. White. All right, Mr. Cohen.

BY MR. COHEN:

Q. Dr. Stone, assuming that the FMC lagoon was ten acres and held twelve million gallons of water and that the concentration of carbofuran was fifty parts per million, how much carbofuran was in that lagoon?

A. With that hypothetical situation would be approximately five thousand pounds.

MR. ZUYDHOEK: Your Honor, excuse me. I don't know that we have had a sufficient basis of his qualifications to answer that question.

THE COURT: It is mathematical. I will overrule the objection. This is something that if you had a sharp pencil, even the Court can work out, but I always flunked mathematics. Overruled.

THE WITNESS: I can do it in my head. Do you want me to work that out?

THE COURT: How ever you want to do it.

THE WITNESS: Okay. If we had twelve million gallons of water, a gallon of water weighs approximately 8.3 pounds, so if we take twelve million, then we come to about ninety-seven million or so pounds within the lagoon if it was twelve million gallons, so we round that off for ease to one hundred million. Now, if we had fifty parts per million, that would mean for every one million pounds of water, we would have approximately fifty pounds of Furadan, so it would be fifty times one hundred which would be approximately five thousand pounds. However, like after visiting the lagoon, we know the lagoon was not full on the 29th.

MR. ZUYDHOEK: Now, your Honor, he is going beyond the scope of the question.

THE WITNESS: Excuse me.

THE COURT: Wait for the next question, please.

BY MR. COHEN:

Q. Do you have any experience at the lagoon which would qualify your estimate as to the amount of Furadan in the lagoon?

A. Yes.

Q. And what was that experience which would lead you to qualify your answer?

A. Well, it is a number of things. One, the post-mortem; two, having done a number of bioassets experiments with water samples taken from there; having ordered chemistry to be carried out on those water samples and getting levels back from the chemist showing large quantities of like fifty to sixty to seventy parts per million of carbofuran or Furadan to be present during that early May period when we were doing that testing and late May.

Additionally I visited the lagoon on 5-29-75.

Q. And as a result of your experiences how would you modify your estimate of the amount of carbofuran in the lagoon?

A. One could not come up with an absolute number. One could come up with a range and I think it would be like half full of water would be my guess, but it would vary from that when I was there on the 29th, so you would then have about two thousand five hundred pounds of carbofuran, roughly, within that ten-acre lagoon area which is an enormous amount of carbofuran even though it doesn't sound so much in that area.

Q. How much carbofuran is allowed to be applied in its use on crops?

MR. ZUYDHOEK: Your Honor, I just don't see the relationship of the application to crops to what is in the lagoon.

THE COURT: I will sustain the objection.

MR. COHEN: Your Honor, I am trying to give the jury a prospective as to --

THE COURT: There are just so many variables, Mr. Cohen. I do not believe we have to know all there is to know about carbofuran. I will sustain the objection.

BY MR. COHEN:

Q. Directing your attention to the period from April 23, 1975 through July 9th of 1975, did you receive any specimens from the FMC lagoon?

A. Yes.

Q. And where did you receive them?

A. I received them at the Delmar Wildlife Research Laboratory unless it was a case when I was personally there and picked up the birds myself, like on the day of 5-29-75.

Q. How did you keep track of the birds that you received?

A. They are put into a necropsy log. It is a routine that as animals come in, they are given a number and kept track of so that reports can be written and referred to specific birds or animals that come in.

Q. Let me show you Government's Exhibit Number 3548. Dr. Stone, let me show you Government's Exhibit 3548. Specifically of that exhibit just pages, - double pages 36, 37, 38 and 39. Do you recognize that?

A. Yes.

Q. Could you tell us how you recognize it, please?

A. Well, it is my log. It is something that I see every day and I recognize the specimens that are in it. It is my log. I recognize the writing of the people who have to log things in here to myself and my technicians.

Q. Dr. Stone, do those pages contain the records of birds received by you which were collected at FMC and sent to you between April 23, 1975 and June 25, 1975?

A. Yes.

MR. COHEN: Your Honor, at this time I move into evidence that portion of the log which contains those entries.

THE COURT: Mr. Zuydhoek.

MR. ZUYDHOEK: I have no objection, your Honor.

THE COURT: It will be marked in evidence.

(Court Exhibit Number 3548 received in evidence.)

THE COURT: Before we get to that, Mr. Cohen. Doctor, in the permits that are given to people who are in the business of buying pesticides, is this set forth in a number of pounds per acre or is it just depending on the crop that is involved or does it depend upon the terrain; what are the considerations?

THE WITNESS: It does depend on the crop that are involved. Now, what you are taught in these pesticide courses and exams and which it is required by law is to follow the directions on the label and you have the EPA involved in the labeling and in the case of Furadan and others there is a warning admonishing one not to apply it in places where it can contaminate waters and fish and wildlife and to follow the instructions for the pest that you are going after. In other words, there are recommendations there of so many pounds per acre or, you know, and how to apply it.

THE COURT: I will overrule the objection previously made, Mr. Zuydhoek and Mr. Cohen, and permit you to question the doctor about the question you wanted to put before about pounds per acre and so forth.

BY MR. COHEN:

Q. Dr. Stone, you mentioned what was the common agricultural pest or insect the carbofuran was used against, to act against in New York State.

A. Some of the ones that I mentioned?

Q. In New York State.

A. Well, for agricultural uses the actual chemical portion of the pesticide, the Furadan, the active ingredient would range somewhere from a quarter of a pound to ten pounds per acre, depending upon what you are going after.

MR. ZUYDHOEK: Your Honor, I don't believe that that answer is responsive to the question. He was asked about what insects it was used on, unless I misunderstood.

MR. COHEN: That is correct, Mr. Zuydhoek.

THE COURT: It was not responsive. Mr. Cohen, put another question, please.

BY MR. COHEN:

Q. Could you tell us what the insects that it is used for and what the pounds per acre recommendation --

THE COURT: That is two questions. First of all, doctor testified previously as to the specific nematodes and other insects that this will be used for, so forget about that. Let us just talk about pounds per acre.

BY MR. COHEN:

Q. With respect to the specific nematodes for which it is used, can you tell us, please, what the pounds per acre application is?

A. For the pests that it is used for, it ranges from approximately a quarter pound to ten pounds per acre.

Q. And how many pounds were concentrated in the ten acres of the holding lagoon?

MR. ZUYDHOEK: Your Honor, I object.

THE COURT: We had that once. We do not have to go into it again. Doctor,how often may application of this be made? Is there any limit upon the frequency?

THE WITNESS: There are, yes. There are limits on various crops as to when it should be put on because there are federal tolerances that have been set by the FDA for how much can be in various types of products that would be going to market, so there are limitations based on the breakdown of it, so if the Federal government or the State government checked these plants and found it in there, then they could be seized and we had a problem here in New York State in looking at potatoes.

MR. ZUYDHOEK: Your Honor, I object to the problem.

THE COURT: Let us not talk about the problem but let us talk about instruction. For example, in potatoes when can it be applied to a potato crop, how often during the growing season?

THE WITNESS: I am not sure.

THE COURT: Very well. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Dr. Stone, what did you do with the birds you received from the FMC holding lagoon?

A. They were logged in and post-mortems were performed on them which means that they were looked over carefully externally for any type of injuries and changes, condition of the eye, was it sunken or standing up nice and bright, and as you would see in a fresh death; whether there were signs of diarrhea, soil material about the vents and then they were looked through from the mouth to the end of the gut and notes taken on the gross pathology which means anything you would see going down through there, congested lungs, small hemorrhages coming from the capillaries and hemorrhages in the vessels of the heart or inflamation of the intestines, all these kinds of things were noted. Additionally, tissues were taken for analysis for pesticides and in the first group that I looked at, my tentative diagnosis was a cholinesterase --

MR. ZUYDHOEK: Your Honor, I object to a tentative diagnosis. Let's establish the foundation for the diagnosis.

THE COURT: Overruled; go ahead.

THE WITNESS: A tentative diagnosis is standard procedure. It is what the pathologist goes from and then gets the data to prove that that is a definitive diagnosis and not just a tenative diagnosis, so in the course of examining these birds since I suspected a cholinesterase inhibitor pesticide which, - since this group is very rapidly broken down in a dead body because of the heat after death and the large numbers of micro-organisms in the gut and decay, the pesticide disappears very quickly, so I knew that if I looked at muscle, I would not find any pesticide or very, very small amounts and I knew from long-standing experience that if I looked at the brain, the levels would be very low even though the impact is primarily on the central nervous system, but I knew that the best places to go for the pesticide would be the gizzard, musculature or material within the elementary canal and the liver.

BY MR. COHEN:

Q. Could you tell us what the gizzard is?

A. The gizzard is the muscular portion of the stomach of the bird.

Q. And what does it do?

A. It is a storage area for food in birds that don't have a very thick-walled gizzard such as the sandpipers, but in the waterfowl it functions not only for storage but also for, - functions just about like we have in the mouth. It has a lot of little stones in it and the muscular gizzard grinds grain or whatever the duck or goose consumes and breaks it down so that it can be utilized further down in the gut.

Q. And what is the elementary canal?

A. The elementary canal is a fancy name for the gut.

Q. And what is the liver?

A. The liver is a large glandular organ that receives food material that is absorbed from the small intestine and it has an important role in the production of amino acids, the storage of energy material, the production of bile. It is the largest organ that you will find in the lower thoracle abdominal cavity, what we would call the abdominal cavity.

Q. Did you do anything with the small intestines?

A. The small intestine was looked at, looked for parasites. In other words, part of the thing is to rule out that we have a parasite here that is killing them, say bird malaria or a trematode. One of the things that struck me, - I shouldn't say it quite that way. Very seldom to never do you ever get a wide array of birds dying from an infectious disease in the same place. It most invariably points to a poison because the parasitic diseases, the parasites have what we call host specificity. They will attack ducks and kill them or the bacteria will kill ducks or geese but they will not in general do well in robins or they will not kill sandpipers, so you have this wide array of taxonomically different, biologically very different birds, and when you have that kind of a thing happening at a particular site, that very history and then the following gross pathology points toward a poison.

Q. Did you send the small intestines out for further analysis?

A. Yes.

Q. Did there come a time when you went to the FMC holding lagoon at Middleport, New York?

A. Yes.

Q. When was that?

A. We left about dawn on 5-29-75 from Delmar.

Q. And when did you arrive?

A. About five hours later, late morning.

Q. At that time did you have a diagnosis of the cause of death?

A. Yes.

Q. What was your purpose in going to the lagoon at that time?

A. I felt that it was an extremely important case because of the quantities of toxin that we found in the water and the reports on the size of the lagoon meant that each day a large number of --

MR. ZUYDHOEK: Your Honor, I don't believe this witness' feelings are relevant. I don't think it has anything to do with it.

MR. COHEN: Your Honor, --

THE COURT: We will strike the reference, Doctor, to your belief that this was an important case. That is, - just disregard that, ladies and gentlemen. Mr. Cohen, put another question.

BY MR. COHEN:

Q. Other than your belief as strucken from the record, did you have any specific purpose in going to the lagoon?

MR. ZUYDHOEK: Your Honor, I don't believe his purpose is relevant in any way.

THE COURT: I do not think the purpose is relevant. He went there and he did something. He can tell us what he did.

BY MR. COHEN:

Q. Could you tell us, sir, what you did at the lagoon, and what you observed?

A. Yes. Well, I went to the lagoon with Ken Cohen, a couple of people from the Federal Environmental Protection Agency, my own technician, John Sigula, Kenneth Cohen and two Fish and Wildlife federal agents, John Cross and Leonard Lisenbee, and Mr. Towns was there as well.

Q. Excuse me. Do you have Mr. Towns confused with Mr. Cole? Was Mr. Cole there also?

A. No. I met there that day both Mr. Cole and Mr. Towns.

Q. What did you do at the lagoon?

A. Well, first thing we did was we pulled up on the south end of the lagoon with our vehicles.

Q. About what time?

A. Late morning. I am very poor on time because I go all through the day and time means very little to me except when I am called on something like this.

Q. What did you do there?

A. The first thing I did was look over the habitat. I had seen the place. I wanted to see what it looked like from the point of view of wildlife habitat or bird habitat and just to get a feel of the geography and the ecology of the area so I looked about and that was the first thing I did.

Q. What did you see?

A. I saw quite an aesthetically pleasing lagoon in a sense initially --

MR. ZUYDHOEK: Your Honor, I would like the witness to qualify the answer to tell us who he is talking about it being aesthetically pleasing to.

THE WITNESS: To me.

THE COURT: I think the fewer adjectives the better, but go ahead.

BY MR. COHEN:

Q. Dr. Stone, you were telling us about your observations.

A. It was an attractive wildlife habitat in that there were grasses, there were cattails down below the dikes, there were --

MR. ZUYDHOEK: Excuse me. Your Honor, I move to strike out the answer because now he seems to be talking about something else that is a conclusion about being attractive.

MR. COHEN: Your Honor, he is a trained pathologist and scientis

THE COURT: Excuse me. Dr. Stone, before you get to your conclusion, you say "attractive". Evidently that means something to you. You just describe it and then if there are some conclusions which are to be brought out, we will do it at the end. The other thing is, Mr. Cohen, I think this is something we do not need. We have heard the description of the lagoon in detail. We have photos of the lagoon. We have had a number of witnesses testify about the size, the shape, the terrain around the lagoon, the growth around the lagoon. Go ahead.

BY MR. COHEN:

Q. Based on your observations at the lagoon, did you reach a conclusion as to whether or not, - as to its value as a habitat for migratory birds?

MR. ZUYDHOEK: Your Honor, I object to that. I don't believe this witness as a pathologist is qualified to answer that question. Perhaps his previous witness was but this witness wasn't.

THE COURT: Overruled.

THE WITNESS: As a pathologist it is unsuitable for wildlife habitat because of the toxins and as a place where you would think if the toxin wasn't there that wildlife would survive, yes, but as a pathologist, it is clearly, - it was on that day clearly unsuitable.

THE COURT: I think the question is as to a person and I will permit it as to a person who is familiar with the wildlife and a person who has studied wildlife. You may answer the question as to whether or not it was attractive to birds in flight.

THE WITNESS: It would, - it was attractive to birds in flight and it was a wildlife habitat, but it was unsuitable to be so because of the toxin.

THE COURT: Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. What specific aspects of the lagoon made it attractive?

MR. ZUYDHOEK: Same objection, your Honor.

THE COURT: Overruled.

THE WITNESS: The open beach-like areas that were, appeared like sand, like beaches, would be attractive to shore birds such as the sandpipers. The size of the open water, ten-acre lagoon and an area where there is heavy bird migration is attractive for waterfowl to sit down and rest on while they are moving about the area and it also had brush on the other side of the fenced-in area and cattails and so on which make up the habitat for a variety of song birds.

BY MR.COHEN:

Q. Did you see any wildlife at the lagoon?

A. Yes.

Q. Could you tell us what you saw, please?

MR. ZUYDHOEK: Your Honor, I object to it as cumulative and unnecessary.

THE COURT: I will overrule but a lot of this is cumulative, Mr. Cohen.

THE WITNESS: I saw a robin in the act of dying and actually died by the time we got to it. I saw some sandpipers dead. I saw a variety of ducks dead, duck carcasses, gadwall pintail. I saw many dead frogs. These frogs were rana phibians, the leopard frog, and I saw many dead toads.

MR. ZUYDHOEK: Your Honor, I object to this on irrelevance, not within the scope of the indictment clearly.

THE COURT: Overruled.

THE WITNESS: My definition of wildlife I also saw a tremendous number of dead insects littering the surface of the water. I saw dead skunks. I saw a dead raccoon.

BY MR. COHEN:

Q. Did you --

A. Dead meadow voles, mice, field voles, very numerous.

Q. Did you collect any of these dead animals that you saw?

A. Yes.

Q. Let me show you Government's Exhibit Number 19. Are the photographs depicted, - are the photographs accurate representations of the subjects you observed at the FMC lagoon on May 29, 1975?

MR. ZUYDHOEK: Your Honor, I understand that this photograph has already been marked in evidence.

THE WITNESS: Yes.

THE COURT: Excuse me.

MR. ZUYDHOEK: I don't believe this requalifying it is necessary.

THE COURT: We do not have to do this again, but maybe there is something you want to have the doctor tell us about the photos.

BY MR. COHEN:

Q. Dr. Stone, let me point out sub-photo Number 7 in there. Is that, - are you in sub-photo Number 7?

A. Yes.

Q. And what are you holding?

A. I am holding a shore bird.

Q. Did you collect that bird?

A. Yes.

Q. Could you tell us where you saw it and what you saw it do?

A. We saw this bird on the northcentral portion, I would say, of the lagoon and I waded out because I had hip boots and it was very weakly moving but by the time we got there it was just dead on the surface of the water and I walked out and picked it up maybe fifteen, twenty, thirty feet out in the lagoon.

Q. Dr. Stone, what did you do with the specimens you collected on May 29, 1975?

A. Well, we came prepared to pick up certain specimens, those that would be fresh or newly dead for very specific reasons, so that I could run tests on them so we came prepared with ice chests and ice and bags and labels so each one was labeled there on the site and photographed with a Polaroid.

MR. ZUYDHOEK: Excuse me, Dr. Stone. I object to this. I believe it is already the subject of a stipulation and is totally unnecessary.

THE COURT: Perhaps there is something else to be brought out in addition. Overruled. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Did you put the birds in the ice chest?

A. Yes.

Q. Did you have any conversations with Mr. Cole that day?

A. Yes.

Q. Did you discuss with Mr. Cole what your beliefs were as to the cause of death?

A. Yes.

Q. Did you have any conversations with Mr. Cole with respect to steps that could be taken to discourage birds from coming to the lagoon?

A. Yes.

Q. Could you tell us what those, - what the substance of those conversations was, please?

A. It was a real problem because the magnitude of the lagoon, but there were already Zon guns there when I arrived that morning on the 29th and I remember remarking that we did not, - there were not enough Zon guns on the site. What we wanted to do was we wanted to mainly scare these migrating birds away. We were not talking about a local population of birds primarily that was learning the noise. We are talking about birds that were moving through and we wanted to prevent the deaths so therefore the Zon guns and noisemakers had been recommended to get the birds out of there and this was very legitimate and it can be effective and cut down on mortality in cases of this type but the Zon guns were on the west bank on the west shore of the lagoon.

Q. Could you step up to Government's Exhibit Number 3 and show us the location of the Zon guns, please. Well, Exhibit Number 1 or Number 3, whichever you refer.

A. This is the lagoon. They were somewhere in this area here. This is the south, north, east, west, I believe, so they were somewhere in this area. There also were styrofoam material out on the pond, floats with little flags on them that someone had recommended to Mr. Cole as a way of scaring birds away earlier and we had a discussion about that and I recall saying that I did not think that they would have any real impact other than actually acting as a decoy. We fully realized that the Zon guns and the noisemakers were not the last word, they were not the final solution.

MR. ZUYDHOEK: Your Honor, I object to what he fully realized. I object to his conclusion as to what a group of people fully realized.

THE COURT: We will strike that answer because it does give an answer about a group which I think is very difficult to answer. Mr. Cohen, next question, please.

BY MR. COHEN:

Q. Prior to your conversation with Mr. Cole, had you had any conversations with anyone else as to what FMC could do to alleviate the situation at the lagoon?

A. Yes. I had conversations with wildlife managers such as Russell Chaney; Regional Department Engineers John Cross, Federal Agent; Leonard Lisenbee, Federal Agent.

Q. Could you tell us what you recommended to Agent Lisenbee?

MR. ZUYDHOEK: Your Honor, I don't see how that is relevant. I don't see where it has any bearing whatsoever --

MR. COHEN: Your Honor, we have testimony of the agents making recommendations to the --

THE COURT: It does not matter what he said to the agent, Mr. Cohen. That is clear. Sustained.

BY MR. COHEN:

Q. Did Mr. Cole tell you on the 29th the problems that he had encountered in using the Zon guns?

A. Yes.

THE COURT: Mr. Lovern, step into the corridor and give that officer instructions about coming into court. Mr. Lisenbee, I do not know how that man is associated with you but do not have him come in to this court again in the manner he did this time.

MR. LISENBEE: Yes, your Honor. I had no knowledge of his presence.

THE COURT: I realize that and I do not say that to criticize you.

MR. LISENBEE: I apologize for his actions, your Honor.

THE COURT: All right. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q. Excuse me. I asked you whether or not Mr. Cole had explained the problems of FMC in the use of the Zon guns to you on the 29th?

A. Yes.

Q. Did you make any other recommendations to Mr. Cole on the 29th?

A. Recommended we had to get the toxin out of the lagoon. Ultimately that was the only end solution that would, you know, make it safe for birds ultimately, and we also talked about the possibility of in some way covering the lagoon so that birds couldn't get to it which would be a massive undertaking.

Q. Did there come a time when you left the total FMC plant at Middleport?

A. Yes.

Q. Did you make any observations at any other place in

Middleport on May 29, 1975?

MR. ZUYDHOEK: Your Honor, I object to that. I don't see the relevancy of it.

MR. COHEN: Your Honor, I would like to point out that Exhibit Number 15 was introduced by --

THE COURT: Excuse me, Mr. Cohen. What was the question?

MR. COHEN: I asked Dr. Stone whether he made observations at any other places in Middleport on May 29, 1975. The relevancy to this testimony is Exhibit Number 15 which was introduced into evidence by the defense purports to contain a, - the conclusions of others with respect to tributary Number 1 of the Jeddo Creek.

THE COURT: I will permit it. Overruled.

THE WITNESS: Yes. We went down to the Jeddo Brook tributary where a storm sewer which carries effluent from FMC goes in.

BY MR. COHEN:

Q. Did you make any observations in the Jeddo Creek?

A. Yes. Russell Chaney, the then Wildlife Manager and I had hip boots and we went down and we walked the stream. I found that --

Q. Which direction did you go in?

A. Both. I went upstream and downstream. Chaney initially went up.

Q. At the time you were there?

A. Yes.

Q. Was there any discharge from the outlet pipe?

A. No.

Q. What did you see at the place the pipe came into the creek?

MR. ZUYDHOEK: Your Honor, I object to this, beyond the scope of the indictment.

THE COURT: Overruled.

THE WITNESS: The, - where the pipe came in which was under the bridge and it was not flowing at the time I was there, any material from it. The pool under the bridge contained dead fish, dead minnows, small suckers, about fifteen, twenty dead fish there. I then went downstream and it was very clean-looking water and the rocks were bare and shiny. There was not algae growing on them and I took courses in aquatic entomology and so as

I went down the stream I turned over rocks and I looked for aquatic insects. I did not find any. I did not find any fish downstream and I moved for about three hundred yards. There also was a general lack of emergent or vegetation coming down to the shore line. Where the water had gone there was a lack of vegetation and I went downstream for several hundred yards and I also looked for signs of aquatic mammals or semi-aquatic mammals such as the muskrat which I could find no muskrats, I could find no crayfish. I could find no scales. In other words, it was a very dead-appearing stretch of stream although outwardly to an untrained eye the water looked very nice. I then went upstream above the bridge and I walked no further than from here to the end of that jury box and I began to find live healthy abundant fish upstream from the pipe. Algae was growing on the rocks and there were crayfish found. There were abundant aquatic insects so it was a day-and-night difference in the same stream in a matter of forty or fifty feet. Once you got to the pipe or below it changed. That answers the question.

BY MR. COHEN:

Q. Did you perform any experiments at the lagoon on May 29, 1975?

A. Yes. I have various ways of screening for poisons and one of my favorite things is to carry a bag of goldfish with me in a plastic bag with small goldfish. We come to a particular point. We take a sample from this area, test for the reaction of the goldfish.

MR. ZUYDHOEK: Your Honor, I don't want to belabor the objection but he testified that he had already formed his conclusion when he came on the site that morning. I don't see what, - all of this is cumulative and unnecessary.

THE COURT: We are away now and we are going to get into a lot of different problems, Mr. Cole. I will permit this, though. Overruled.

THE WITNESS: Yes, I did. I tested the water on fish and it killed the goldfish within

1.5 minutes to 2 minutes from various samples of the lagoon. However, the water of Jeddo Creek did not kill goldfish. In eighteen hours the goldfish were fine because the water had flushed through. We were getting upstream water running in and it was not toxic to the fish.

BY MR. COHEN:

Q. Dr. Stone, do you have an opinion as to what caused the death of those migratory birds in the indictment which you examined?

A. Yes. The opinion is that --

MR. ZUYDHOEK: Dr. Stone, just a minute. Just one further foundation question, your Honor. I think it would be appropriate if we identified what birds in the indictment he examined.

THE COURT: Yes. I think that is important, Mr. Cohen.

BY MR. COHEN:

Q. Dr. Stone, let me show you Government's Exhibit 3548 and the indictment. With respect to the approximately twenty-six Canadian geese alleged in --

THE COURT: Keep your voice up, please, Mr. Cohen.

BY MR. COHEN:

Q. There are approximately twenty-six Canadian geese alleged in Count 1 discovered on April 23, 1975. Did you examine them?

A. No.

Q. There are approximately twelve migratory ducks alleged in Count 2 of the indictment. Did you examine them?

A. No.

* * *

BY MR. COHEN:

Q Thank you. Dr. Stone, let me show you Government Exhibit 3549. In the interval, did you compare the birds set forth in the indictment with the bird which you had logged into your laboratory log book?

A Yes.

Q And did you set down your log book number for each bird that is set forth in the indictment which you necropsied?

A Yes.

Q And is Government Exhibit 3549 that list?

A Yes, it is.

Q But it is not in your handwriting?

A No, it is not.

MR. COHEN: Your Honor, at this time I would like to move into evidence Government Exhibit Number 3549.

MR. ZUYDHOEK: No objection, your Honor.

THE COURT: It may be received in evidence.

(Court Exhibit Number 3549 received in evidence.)

BY MR. COHEN:

Q Dr. Stone, do you have an opinion as to the cause of death of the birds set forth in the indictment which you necropsied?

A Yes.

Q Would you tell us what the basis of that opinion is?

A It is based on a multiplicity of things and investigations. It is based on searching the literature. It is based on the known toxicity of Furadan to birds and it is extremely toxic to birds, taking only a tiny speck, a little speck on the end of your finger that you could bearly see, is sufficient to kill a Mallard duck, .3975 milligrams is the LD 50.

Q What is an LD 50, Doctor?

A LD 50 would be if you gave a given quantity of poisen to twenty birds, ten of the birds would succumb and ten would survive, 50 per cent mortality.

Q What other factors were significant in the formulation of your opinion?

A. Well, that was the beginning. I used a number of laboratories, none of them administered by the same people and I had water samples done by the New York State Department of Health and they found high levels of carbofuran in the water. The Rome Pollution Laboratory, Earl Harris, a chemist out there, reported the also high levels of carbofuran. I also reviewed the EPA date. The EPA found also high levels of carbofuran from the 5-29 sampling and so I had three on water and then I had the Ag and Markets Food Laboratory, Albert Karas, the assistant director of the food lab, run tissues and we found the carbofuran. They found carbofuran in those tissues and I had Earl Harris at the Rome Laboratory also run tissues so we had a lot of different places plus the bio assays in which we tested the lagoon water for toxicity to birds, fish and frogs and found it to be extremely toxic. In fact, the most acutely toxic water samples I have ever seen and I have looked at a lot of water samples. Also the gross pathology is consistent with a cholinesterase inhibiter poisening. The lack of any other types of causes of death, bullets, multiple trauma that would go across this group or bird malaria or fowl cholera or duck virulenteritis, all these types of common types of bird mortality were looked for. When the blood was in simple condition we examined them with keen sustained smears for the presence of blood parasites. Sections were made to see if there were any microscopic lesions that we may have missed, caused by a virus, and taking in the scientific literature, the group of laboratories who ran the tests that I ordered and also eliminating some other factors, we screened for lead and arsenic and samples were taken to see if this was a possibility.

Q Excuse me, Doctor. Did you screen for ammonia or any experiments with respect to ammonia?

A. Yes. Initially some of my colleagues and some of the reports, thought ammonia would be the likely thing to be killing the birds because there had been fish killed that had been associated with ammonia so we had a level by Harris and other data on ammonia in the lagoon and so we approximated that ammonia level experimentally in the laboratory and we fed it to Canada geese for twelve one hour periods and nothing happened to the Canada geese outwardly. They showed no abnormal signs. I didn't carry out chronic toxicity problems but I was looking for the acute toxicity and blood ammonia levels were done by the Albany Medical Center by Dr. Brown and there was some elevation of ammonia in the blood but there were no overt signs of disease in those experiments, whereas the same kinds of work, and also in mice. He injected it into the interperitoneal cavity of the mice and the mice did not show any overt signs of disease. However, if you, - when I took, - in my initial screen of a water sample before any chemistry was done, I wanted to see if it was as toxic as I thought it might be and so I injected, - I took groups of mice, a control group and I anesthetized them with ether, knocked them out and cleaned off their abdomen with 70 per cent .ethylalcohol, zero solution needle and injected a very small quantity one milliliter of distilled water. Now, a liter is approximately a quart. A milliliter would be one thousandths of a liter or approximately one thousandths of a quart into the interperitoneal cavity of the controls of distilled water and in a few minutes they came out of anesthesia and they wobbled about for about a few minutes and fifteen, twenty minutes later our mice are running around the cage and acting perfectly normal. When I took the FMC lagoon water and I innoculated a group who were treated exactly the same, were exactly the same strain of mice, the same age, into the abdomen they died within twenty minutes after innoculation and they went through very dramatic train changes. They started off with tremors a few minutes after innoculation and they soon became unable to be coordinated. There was kinking of the tail as the muscles contracted and then there was respiratory paralysis and death and we repeated this with a large number of mice, several times on several different samples and also watched how long it took to get a significant breakdown in some of these water samples as far as toxicity to mice was concerned.

Q What do you mean by that, Doctor?

THE COURT: Excuse me, Mr. Cohen. Can you wait just a minute. All right, Mr. Cohen.

BY MR. COHEN:

Q What do you mean by that last remark, trying to see about the breakdown of the water in mice?

A. I wanted to see if I took a sample from the lagoon and kept it at room temperature, how quickly would the toxicity of the water sample go away and it took about three weeks before the mice survived that one milliliter injection, about three weeks before we got a significant breakdown to the level where it was not very toxic to the mice after it was taken from the lagoon.

Q What other factors contributed to your conclusion, Dr. Stone?

A. Well, looking at the levels that I saw in the tissue, talking to other pathologists such as Martin Rosen in

8 California - -

MR. ZUYDHOEK: Your Honor, I object to Mr. Rosen.

THE COURT: I will sustain the objection to your conversation with the man in California. Go ahead, Mr. Cohen.

BY MR. COHEN:

Q In other words, did you, - did consultations without telling us the substance of the consultations contribute to your opinion?

A Yes, in the sense that they bore them out where I might be, - I think that, to continue, with the data available on the levels of the toxin and the gross pathology there could be no doubt that birds and other animals that would consume water from the FMC lagoon during that period would be all intoxicated to some degree, all be poisened to some degree and a majority of birds, water birds and so on that consumed larger portions of water per day, would succumb.

Q To what would you atribute the survival of the others? You said a majority. That means others survived. To what would you atribute their survival?

MR. ZUYDHOEK: Your Honor, I don't believe we are dealing with survivors and I object to it. It is irrelevant.

MR. COHEN: Your Honor, he is reporting the results, - well, the factors which went into his opinion and that is one of the factors.

THE COURT: Did you take any samples of live birds that you kept and then stayed alive, Doctor?

THE WITNESS: Yes.

THE COURT: You did?

THE WITNESS: Yes.

THE COURT: All right. I will overrule the objection and permit testimony about that. Go ahead.

THE WITNESS: Would you repeat the question once more?

BY MR. COHEN:

Q Could you tell us about, did the experiments with respect to live birds, some of which resulted in survival of the birds, contribute to your opinion and if so, how?

A Yes. The behavior of the experimental birds, and I should have mentioned this, in my summary the histories and seeing the behavior of the birds in the field dying of, or Lisenbee's reporting of how a bird recovered from it was the same as observations I had with pheasants, game farm pheasants that I fed FMC water. In the case of the pheasants, the pheasants became prostrate after drinking the water and were severely ill, in tremors, wings outspread, mucus, excess saliva flowing about the bill, but over a period of about forty-five minutes they recovered and one of the good things about a carbamate or an organo phosphate pesticide is that in general they are not very persistent in the environment. They don't tend to build up over a long period of time and they are broken down extremely quickly in the body of a bird or a man, the actual pesticide such as carbofuran so those observations were very important in coming to the diagnosis and fitting it in with the field work.

Q Could you tell us, please, what your opinion is as to the cause of death of the birds set forth in the indictment which you examined?

A Those that I examined, my diagnosis is, they succumbed from carbofuran poisening.

Q In your examination of FMC water, did you discover any other noxious substances to birds in it?

MR. ZUYDHOEK: Now, just a minute. I object to that. He has just given his opinion as to what the birds in the indictment died and now he is starting to talk about something else. It is completely irrelevant.

THE COURT: We talked about how he ruled out other causes. Is this part of that business, Mr. Cohen?

MR. COHEN: Your Honor, may I explain this to you at a sidebar and out of the hearing of the jury?

THE COURT: All right. Mr. Zuydhoek.

(Sidebar conference had off the record between Court and counsel.)

THE COURT: I will sustain the objection. We will continue, Mr. Cohen.

MR. COHEN: Dr. Stone, thank you for your opinion. Mr. Zuydhoek.

THE COURT: I think what we will do, Mr. Zuydhoek, we will take a recess. Why don't we say we will meet again at 2:00 o'clock and we will continue the testimony of Dr. Stone. We will be in recess.

(Recess taken at 12:32 p.m.)

* * * * * * * * * * * * * * * *

PROCEEDINGS: June 29, 1977, 2:00 p.m.

APPEARANCES: As before noted.

(Jury present.)

WARD B. STONE, a witness called by and in behalf of the Government, having been previously duly sworn, resumed the witness stand and testified further as follows:

CROSS EXAMINATION BY MR. ZUYDHOEK:

THE COURT: Mr. Zuydhoek, do you want to begin your cross examination.

BY MR. ZUYDHOEK:

Q Thank you, your Honor. Dr. Ward, I am going to show you Government's Exhibits 3548 and 3549 and you recall that these are your log book and the chart you made for purposes of the trial. Now, looking first at the log book, Exhibit 3548, my recollection is that Mr. Cohen started in with Page 36 on April 30th and as I look down the page I see a referenct to FMC and the numbers that were assigned, 36-13 to 36-17. How did you go about assigning the numbers; how do you know what number to give what type of animal?

A The number that the animal gets, we don't select any particular kind of number, whether it is a bird or reptile or mammal. The number is selected on the basis when it comes in - -

THE COURT: Excuse me, Doctor. Will you keep your voice up.

THE WITNESS: Yes. I'm looking at the book. The pages in the log are numbered and in this case it is a 36 at the top of the page. Therefore, the necropsie number would be 36 and additionally you go down the column and, say, it is an animal that is the Number 5, might be a robin or a deer, whatever is logged in there. Then it would be 36-5, would be the necropsie number and on occasion some field biologist, technician will submit, say, three birds or something and then there would be like a 36-5A for the first one, B for the second one, C for the third one.

BY MR. ZUYDHOEK:

Q And I notice on the sheet that you made out for the trial, Exhibit 3549, you have got from 36-3A. I am having some difficulty finding on Page 36, Number 36-3A. Can you show me where that is?

A Yes, sir, I can, 36-3A.

Q Oh, I see, the 3 relates to the line?

A Yes, sir.

Q And there a merganser, yellow legs and lark.

A Yes.

Q Now, is everything that comes in logged in, - every animal that comes in for an autopsy logged into one of these books?

A Yes, sir.

Q And there is some kind of history made with respect to the manner in which the animal died?

A Usually. The history comes in with the specimen but very often the history is most inadequate as was the case with those mergansers.

Q You have answered the question.

A Yes.

Q I notice, thumbing through this book, there do not appear to be any fish. Am I incorrect in that? Are there fish in here that would be logged into this book for autopsy?

A There are rare fish, very rare.

Q You would have a relatively little opportunity to do autopsies on fish?

A I have a colleague in the New York State Department of Environmental Conservation who is a fish pathologist.

Q Oh, I see.

A. And he does the fish.

Q. When you are a wild life pathologist that means something other than fish, - animals?

A. Yes. This morning I mentioned, I think I used the term that I cover amphibians to moose. In other words, I really start with the amphibians.

Q. You will have to excuse my ignorance of some of the terms. I really don't understand all of them, and I see this interesting notation on Page 34 in April of 1975, relative to several Canada geese being killed.

MR. COHEN: Your Honor, at this point I would like to make a tentative objection.

THE COURT: It is cross examination. Even if these Canada geese were not part of the indictment here it may be important to find out how the record was kept and set forth. Go ahead, Mr. Zuydhoek.

BY MR. ZUYDHOEK:

Q. Correct me if I am wrong in reading the history here, Dr. Ward, "Geese were found dead in chopped corn field where farmer had no", - I am sorry, "where farmer", - I can't quite read that word. Do you know what that is?

A. It should be "had".

Q. "had and is spreading manure".

A Yes.

Q "A brown slimy substance in mouth of one, foul smell; farmer was" - -

A "Uses"

Q "Uses various poisens in barn". Did I read that correctly?

A Yes.

Q That would be your practice in connection with maintenance of this book, to record history of that nature?

A Sometimes if they are good they get in, yes.

Q Well, this was a good one?

A That was a more complete one, yes.

Q I see, okay. Dr. Stone, have you ever testified before?

A Yes.

Q On numerous occasions?

A Yes.

Q In connection with bird pathologies?

A I have testified before on bird pathologies. It has been on a variety of things. Most of it has been to do with other aspects of forensic pathology such as identifying deer meat, that sort of thing, poaching cases.

Q I am a little bit confused as to how your field, wild life pathology differs from ornithology. Could you explain that, please?

A. Yes. An ornithologist specializes in the study of birds, the science of study of the birds and, of course, any zoologist knows something about birds but even ornithologists specialize within the specialty of ornithology. Now, pathology is the scientific study of disease processes, or of disease, and we take disease in the broard sense as any deviation from normal, primarily talking about physiological deviation, physical deviation, annomalies, teratogens and studying parasites and diseases and so on which would result in anything from slight morbidity or slight illness to death with most of the stress in my position being at the extreme the mortality rather than the morbidity and like you say, with the history, anybody can submit an animal to me in the State of New York and if they come in from a conservation officer that two birds were found on a lawn in some town I have never heard of in Chemung County with no real history there, such and such a date, and I will post them and either call a report to the man or write a report. Generally there is a written report on them to the person who submits them but not always during the hectic periods.

Q. And I take it that some periods are more hectic than others?

A. Yes, like this past winter was extremely hectic with birds.

Q Now, was that principally because of the weather, the severity of the winter?

A That was a very major factor, yes.

Q What were the other factors involved this past winter?

A Other factors were the oil pollution, the fact that municipalities and industry's discharge pipes with warm effluent and things like oil tend to keep water open and during cold periods birds are attracted to open water as a place to eat and drink so they ingest large amounts of plastics and PCB's and oil and that was a complicating factor with malnutrition.

Q Do you know Dr. Reilly?

A Oh, yes, a long time.

Q Were you here yesterday when he testified?

A Yes, I was.

Q Did you hear the statements he made with respect to the number of birds killed on an average day in Columbia County by automobile?

A If I recall correctly, it was a hundred per day by automobile.

Q Do you recall that testimony?

A I believe that's correct. You correct me if it isn't.

Q Do you agree or disagree with those statistics?

A A hundred a day on the highways of Columbia County seems very reasonable to me.

Q You also testified on your direct examination for Mr. Cohen to certain permits for applicators of pesticides; do you recall that testimony?

A Yes.

Q And I believe you mentioned something about the applicators are generally advised to follow the directions on the label?

A Always advised, I should have said.

Q Always advised by whom?

A In the course, we were taught that, and it is a violation of law not to follow the directions on labels, as I understand it.

Q Who teaches the course which you mention?

A New York State.

Q New York State what?

A Department of Environmental Conservation.

Q That was a course you attended?

A Yes.

Q Were you attending as a student or as an instructor?

A Student. I took this course - -

Q You have answered the question, Dr. Stone. Who else was attending, what other types of people were attending this course?

MR. COHEN: I object, your Honor.

THE WITNESS: Farmers.

BY MR. ZUYDHOEK:

Q Pardon?

THE COURT: Overruled.

THE WITNESS: It was overruled? Farmers were, greenhouse operators. It was primarily those and professional pest control applicators.

BY MR. ZUYDHOEK:

Q And among the instructions are to follow the instructions on the label, among the things that are taught at the courses to follow the instruction on the label, is that correct?

A On the label that is on the product.

Q Right.

A Do not deviate and apply more pesticide then it says, follow the recommendations on the registered label, yes.

Q Who puts the instructions on the label?

A The instructions are, - this is an assumption on my part. I don't know. The labels are made for the companies who manufacture and put out the pesticides.

Q Do you know whether there is any approval of the substance of the instructions on the label?

A Yes.

Q And by whom is that approved?

A. It would be approved by EPA. It has an EPA number on it.

Q. United States Environmental - -

A. The United States, yes.

Q. The Environmental Protection Agency?

A. Yes. There are State registrations of each one of these labels as well but I do believe it is primarily a rubber stamp of the Federal action.

Q. But there is also a State review of the substance of the label as far as you know?

A. There are people who are to do that, yes.

Q. Do I take it by that it is your opinion that they don't do that?

A. I think that for the numbers of people that there are, they attempt very hard to do the job but yet there is more need to review the information.

Q. To your knowledge, does the Environmental Protection Agency control pesticides? Do they have a statuatory authority to control pesticides, to your knowledge?

A. Well, you are talking about points of the law and I am not qualified in law but I do know that the Food and Drug Administration, FDA tolerances are set by the FDA so that some of the regulations and the laws such as the levels of mirex and PCB's and things are set by the FDA and the EPA is involved but there is also regulation of pesticides in every State to one degree or another and sometimes down to County or even municipal levels.

Q DDT you mentioned, Doctor, is that known as a chloronated hydrocarbon?

A Yes, it is.

Q And do you know what the EPA has done with DDT?

A Well, as of about 1970, it has been stopped from use except for some very specialized purposes. There have been some special permits to use DDT, for example, to kill bats in some situations where they carry rabies. There has been some limited use of DDT in areas where there was plague in the western United States and there was an exception several years ago of using DDT on the west coast in the Oregon-Washington area to control the Tussock moth.

Q Are there similar restrictions for other chloronated hydrocarbons?

A Yes, there are.

Q Is PCP that you mentioned, is that some kind of chloronated hydrocarbon?

A Yes, sir.

Q Is mirex, is that some kind of a chloronated hydrocarbon?

A Technically it is an organo-chlorine because it actually does not have any hydrogens attached to it but it is derived from hydrocarbons.

Q A derivitive of chloronated hydrocarbon?

A. Yes.

Q. What pesticide alternatives are there to carbofuran?

MR. COHEN: I object, your Honor. We are getting pretty far afield at this point.

THE COURT: I will sustain the objection.

BY MR. ZUYDHOEK:

Q. All right. You mentioned that when you went out to the lagoon on May 29, 1975, - I am not exactly sure of the precise words, but the note that I made was that you already had the diagosis for the cause of death in your mind; is that your recollection of it?

A. Yes, sir, close to that.

Q. And by that, I take it by May 29th you had already examined a number of birds and done the autopsies on them?

A. I think I said I had a tentative diagnosis and you objected to "tentative".

Q. Yes, I did. What, - before you actually went out to the plant, what did you base your tentative diagnosis on?

A. It was based, - the first birds that I received I believe were 5-2 and I didn't know what FMC was, to tell you the truth, as a corporation or anything. It was not meaningful to me and I did the post and from the post-mortems I felt very strongly, based on the gross pathology, that the birds had died from a cholinesterase inhibitor pesticide, whether an organo phosphate or carbamate, I wasn't sure, but my strong pathological hunch was to probe in that direction and that is what I did. Now, we got water samples and I felt that it was the water, it was the water was involved. Therefore, I tackled the water and I had Dr. Brian Bush, a colleague of mine in the New York State Department of Health check it for carbofuran and he came back with a high level of carbofuran. Now, he wrote me the letter on the carbofuran analysis on 5-29-75 which was the same date I was at the FMC. However, we had talked about it on the phone off and on for several days so I already knew those levels and that's why when I met Mr. Cole I told him about the carbofuran, the levels we had in the water and we had a very amiable exchange of information.

Q Was this the first time you passed on your suspicion of carbofuran being the cause of the bird deaths to anyone at FMC?

A I don't know. You know, it is over two years. I believe that that would be the case because I had not met Mr. Cole and I don't recall talking to him prior to that time.

Q Now, you mentioned that carbamates and organo phosphates are cholinesterase inhibitors?

A That's true.

Q Are all carbamates cholinesterase inhibitors?

A All carbamate pesticides? To some degree. Some of them not very much at all, though.

Q Did you undertake any, as part of your investigation, did you undertake any review of literature with respect to dithiocarbamates?

A Yes, I did, because I did not know that the bird kill was going on in April but after I did those posts, I talked on the phone with a lot of people who were calling me like Pat Martin and Earl Harris and so on and so I can't recall exactly who I talked to during that period but I did get a list of some of the things that were manufactured by FMC and I got a horrendous list because when I looked up some of them myself I got things manufactured by the plants all over the place and I started looking at water samples and reviewing the toxicity of things like dithiocarbamates, zinab and so on and when I looked at things like zinab I found like two thousand parts per million, BLD 50 for a duck and when I started looking at the water solubility and coming down this list I came to furadan or carbofuran and found that it had solubility of water of seven hundred parts per million which doesn't seem like a whole lot but it is quite soluble as pesticides go with water. That's a lot of it and when you look at the toxicity in the literature this made a primary candidate while the dithiocarbamates with lower, much lower toxicity would not be such likely candidates and then when we looked at the water samples we did not find dithiocarbamates anyplace so it was pretty well eliminated.

Q So as far as you were concerned you completely eliminated dithiocarbamates as a possible cause of the bird deaths?

A. Yes, sir.

Q And in your review of the literature, did you investigate whether dithiocarbamates, or toward what range dithiocarbamates are cholinesterase inhibitors?

A. I don't recall that specifically, no. I noted a much greater, or the much less toxicity of them which was primarily in moving this and the water solubility and I was seeing things like fifteen hundred to two thousand parts per million, - milligrams, rather, fifteen hundred to two thousand milligrams which is a very large amount. That is one four hundred fifty-fourths of a pound to two four hundred fifty-fourths of a pound as being an LD 50 for a mallard duck versus approximately one in one point two million, - one in one point two million, which is a tremendous difference.

Q You also mentioned organo phosphates. Did you review, - did you ascertain that there were organo phosphates manufactured at the FMC plant?

A I recall seeing some organo phosphates but we had some other checking about what was being produced at the time too and I believe Mr. Harris was doing some of this checking and I don't recall the organo phosphates, if they were being produced at that time.

Q Are you aware of the fact that malathion is an organo phosphate?

A Very much so. I have diagnosed birds dying from it many times.

Q Did any of the birds that you examined exhibit any factors that could be attributed to malathion poisening?

A In a general sense of the gross pathology, that could be a possibility. I will tell you, malathion very rarely kills birds except under extreme cases of abuse. It is not anywhere near as toxic as carbofuran and it breaks down more quickly.

Q Malathion is an organo phosphate, is it not?

A Yes, versus the carbamate which we were discussing, the carbofuran.

Q And karathan is an organo phosphate, is it not?

A Yes. That is a very, very toxic one.

Q And the organo phosphates are generally far more toxic to humans than are the carbamates, are they not?

A Well, yes. It is generally written so. However, there is a good reason for that and that is primarily due to the fact that the organo phosphates are generally taken through the skin far more readily than are the carbamates. On the other hand, if you get furadan in your eye or something, the mucus membrane or you inhale it or you ingest it very serious things can occur but you will get very serious reaction if you bathe in it too and get it all over your skin but it is true that carbamates do not go through the skin generally as readily as do the organo phosphates.

Q Are you aware of any literature which suggests human deaths from organo phosphate poisening?

A Suggested? No. There is literature that not only suggests it but documents it.

Q Now, you mentioned some of the uses for the carbofuran. I think you mentioned, and I believe your characterization was on the particular crops and on the insects involved, corn being one?

A Yes, sir.

Q Can organo phosphates be used on corn?

A Yes, they can.

Q On the corn root worm?

A Yes.

Q Can the chloronated hydrocarbons be used on the corn root worm?

A I would prefer that they not be.

Q Well, a lot of us would. Can they be used on the corn root worm?

A. There are some that could be but most of them now are illegal and there is, you know, the carbamates and organo phosphates are preferable because they do not persist in the environment whereas the chloronated hydrocarbon substitutes tend to build up and lead to additional long term problems such as we have with the eagles and the fish.

Q You mentioned, I think, on direct testimony with respect to the carbamates, is it that they break down very fast in the environment or are you speaking relatively?

A. If we look at the cholinesterase inhibitors, take the carbamates as a group, a very familiar one is sevin or carbaryl, very frequently used on home gardens and sprayed around the yards. It is really very toxic although in dosages that it is applied and because of its rapid hydrolysis there is little problem with it in most usages but I have had cases in the last year or two in areas where Japanese beetles were breaking out people were buying sevin and going out and spraying rose bushes and spraying the trees and then birds were coming in and ingesting them and dying in these yards. You have to respect these organo phosphates and carbamates because they are very, very toxic and I think in the future we are going to have to improve on our insect control to come up with things that are even better than what we now have, safer environmentally.

Q In your investigation of pesticides generally in connection with this case and your general knowledge of them, do you consider it a viable alternative to just ban the use of all pesticides?

A. I do not. Pesticides are essential in the modern world right now and we have got to keep using pesticides but we should be very careful not to abuse them, not to have lagoons full of material that birds can get into. We have to be careful not pollute Lake Ontario with mirex and ruin our fishing and cause great grief. We have got to be very careful about the use but in no way would I recommend cutting out pesticides from American agriculture because we would not only not be able to feed much of the world but we would not be able to feed ourselves.

Q You know that from your review of the literature and your own personal knowledge?

A. It would be irresponsible to come out against pesticides in the overall view of them. In specific cases they should be banned or restricted and we should cut back on some of the uses but pesticides are essential.

Q All right. Now, when you went to the FMC plant did you look into the manufacturing processes in any way?

A No, I really didn't look into it very extensively because I did not feel competent or knowledgeable about engineering and about plant management.

Q You didn't, for example, look at the Furadan plant?

A Did I tour through it?

Q Right.

A No, sir, I did not.

Q And you didn't go through the dithiocarbamate plant?

A No, sir.

Q And you really weren't concerned with the mechanism of how the water got into the pond as much as you were concerned about what was already there, is that an accurate statement?

A I was concerned about how it got there but it would not be within my area of expertise to handle that so my concern as a wild life pathologist, my job primarily is to protect wild life and to protect the environment out there. That is the aspect that I went out there, not actually inside the plant.

Q Now, you mentioned that you made a trip and you walked down the creek and walked back up the creek and you made certain observations with respect to what you saw and perhaps more accurately what you didn't see. Did you attribute what you didn't see and what you saw to the presence of carbofuran?

A. No. In contrast to the bird autopsies I do not relate that to the carbofuran. One would have to do, - I related it to material coming from FMC. I do not relate it to any specific substance.

Q. And that very well could be ammonia?

A. Yes, sir, in part or zinc also inhibits plant growth. I have a number of ideas but no definitive data.

Q. But you eliminated zinc and ammonia when you drew your conclusion with respect to what killed the birds that are in the indictment.

A. That's true.

Q. And you have essentially eliminated everything except for carbofuran?

A. Yes. I was talking about causing deaths on an acute basis, not talking about chronic poisening or something that could carry on over a long period of time.

Q. You understand that I am talking about what is in the indictment?

A. Yes.

Q. Again, with respect to, - well, let's look at the Exhibit, 3549 here. Did you, yourself, examine every single bird that is listed on that Exhibit?

A. If "examine" means "look at" everyone of those birds as they were posted, yes, I looked at everyone that was posted.

Q Did you make a personal notation of their being, - did you post them; would the numbers in the log book be in your handwriting?

A No.

Q All right.

A But anything that was done on them was done by the technicians who were under my supervision or they were done by the chemists in the other agencies where I sent the specimens.

Q So the gross pathology that you mention, that would have been done by a technician?

A No.

Q You did the gross pathology?

A Yes.

Q Now, was gross pathology done on all of the birds?

A It was looked at in every one of the birds, yes.

Q So every bird on that list you did the gross pathology on?

A Every bird on that list I looked at, inside the bird, looked him over to see what the gross pathology was, yes.

Q And you also to some extent, relied upon Mr. Harris in Albany, I guess it is, for certain information?

A I relied on Mr. Harris and Mr. Karas and Dr. Bush.

Q I believe Mr. Harris did some examination of bird tissue?

A That's true.

Q To ascertain whether there was any carbofuran residue in that bird tissue?

A. That's true.

Q. He also testified that aside from the ones that are reflected in a letter that he wrote, he received some other tissue from you which he didn't have time to examine. I don't know if you were here or not for that testimony.

A. I was here.

Q. But do you know that to be a fact?

A. I know that is absolutely true.

Q. Can you tell me which ones of the birds listed on that Exhibit were sent tissues from, which ones were sent to Mr. Harris that he failed to examine?

A. The June 25th group, this group right here, the 32 and 33, 34, 35 and 36.

Q. That is Indictment Number 32, 33, 34, 35, 36?

A. Yes.

Q. And that consists of how many birds?

A. Looks like nine birds.

Q. Nine birds?

A. Nine necropsies, yes. That would indicate that, yes, 4, 5, 6, 7, 8 and 9. That is nine sets of tissues.

Q. Did Mr. Harris give you any reason for failing to do those examinations?

A. Yes.

MR. COHEN: I object, your Honor. We have previous testimony from Mr. Harris on this point. It would be complete hearsay and acc[illegible]ve coming from Dr. Stone.

THE COURT: I[illegible]s examination. Overruled.

BY MR. ZUYDHOEK:

Q What was the reason he gave?

A Well, that was the summer of '75 in which we had a very hectic summer. We had the Lafalse deer that was killed and we had the, - that was a very famous deer killed by one of our people with a tranquilizer gun and that caused us pathological and chemical work. That was followed at about the same time by the National opening of the PCP issue and more particularly the Hudson River and - -

Q Why was that a Nationally open issue? Had it existed before them?

A Yes. I had been talking about it since 1969 and there were maybe ten thousand other people around the word had, but it became a public realization and the press really got rolling on it and it became clear that the Hudson River was perhaps the most polluted place in the world for a major body of water with PCP's and that kind of a unique finding in New York, we really could have done without and so that meant tremendous fish sampling and wild life sampling and need for immediate data for the General Electric case and so pathology and chemistry was totally tied up with that work and by the time the machinery was free and the technicians were free to tackle the carbofuran, there was no longer any sense of checking the tissue for carbofuran because it would have disappeared and been metabolized at that point.

MR. ZUYDHOEK: Just one second, please. I have no further questions of Dr. Stone.

THE COURT: Nothing further, Mr. Cohen?

REDIRECT EXAMINATION BY MR. COHEN:

Q Dr. Stone, what is the difference between a tentative diagnosis and a diagnosis?

A. A tentative diagnosis is after you have done your necropsies or autopsies and you have got very vague evidence as to what you have got but you don't feel absolutely, you would not stake your life on that diagnosis, not that far, you feel like ninety-nine per cent or ninety-nine point nine per cent sure of it, so you say that it's tentative but if you are pressed by somebody, say, a conservation officer about why did that deer die, so he is pressing you, we have got to get after that pollution, there is something deadly there, what do you think it really is, you know, from the evidence you have got and you say, "I don't know but I would say maybe I am looking for this", and then when I am quite sure I know what it is say, "I have a tentative diagnosis, I am about ninety-five, ninety-nine per cent sure what it is", and it is malathion or carbofuran or bird malaria or what have you. Then you continue to work and you look at it all until you feel it absolutely sure that you have a diagnosis and that you really fully accept it as being the cause and that is when I arrive at the diagnosis, so I view opinion and diagnosis as slightly different and tentative diagnosis is in between. Opinion to me is if you have a tentative diagnosis and then diagnosis is stronger than a tentative.

Q Dr. Stone, could you just tell me what a gross pathology is?

A. Gross pathology is, you look over all external features of whatever you are looking at, whether it is a deer or a man or a bird, you look in its mouth, you look in the openings, in the nose, the eyes, to see if there is any abnormalities, any broken bones, any hemorrhaging, any bruises, broken nails, bent feathers, anything that is abnormal on the outside. You look in the mouth. You weigh the bird. You get a feeling whether it is fat or emaciated or just the right weight. You make an incision in the case of a bird, up in the corner of the mouth and come down the side of the neck and you go diagonally around the sternum. The sternum of a bird is very big. You go down the other side. The sternum is clipped out. You then can see into the body cavity. As you come down you examine the airway, you examine the esophagus, you examine the crop, you note any abnormalities of parasites or presence of food or anything in that esophagus on the way down, blood in the trachia. You look at the lungs, you look at the heart and any abnormalities are noted there. You go all the way down through the alimentary canal, you clip it out, you cut the masseteries and you go all the way down to the end of the alimentary canal noting anythings you see there, like ulcers or inflamations or hemorrhage or anything of that sort. In the case of birds, you have to dig the kidneys out of the back. When you go to the Colonel Sanders or something like that and you get those little bags, those are the little things you dig out of the back and you cut those in half and you look for hemorrhages in those. You get an indication of arsenic poisening by hemorrhages at a particular line in those kidneys and you put that together and sometimes you get a diagnosis which is pretty easy if a bullet goes flying through there and you will come along and you will find three or four bird shot with fresh hemorrhage in the holes but from the gross pathology then you run tests and experience becomes very important because tests are very, very expensive and time consuming, so you go by the changes that you see in the gross pathology and then you go for a specific test. For example, you might see a very hugh spleen in a bird and very often a very hugh spleen indicates that you have a blood parasite, a type of malaria which is very common in New York. It is not transmittable to people, just birds, and you look and you make your blood smears and impressions and twenty minutes later you have got a definitive diagnosis of malaria and you can bring it right down to species but in other cases where it is toxins where you have to come down and identify specific molecules your diagnosis, your definitive diagnosis is at best about ten days away until you can identify that specific pesticide. It is not enough to say the bird died from a carbamate pesticide. You have to find sevin or you have to find carbofuran or if it is an organo phosphate you have to find the diazinon specifically.

Q Dr. Stone, what, if anything, did you do to eliminate the organo phosphates as a cause of death?

A. Well, when the gastrome toxicity was done there were no peaks showing up in the organo phosphate area and that was one of the things and then all the other evidence on the amount of toxin in the water and the toxicity of the carbofuran and everything, the findings in the tissue all pointed to carbofuran but the major factor was the inability of the chemist to find any organo phosphate present in the tissues and in the gut contents that was tested for it and only the carbofuran was found.

Q With respect to, - after the gross pathology, what test did you delegate to others under your responsibility?

A. Well, they didn't actually, - well, they stained slides that I looked at. They went down elementary canals and scraped out parasites so I could take a look at those. We looked at stool samples, lower alimentary canal material and zinc sulfate floats and saline to make sure there wasn't something there like parasitic toxicity or something, so all this, you know, was fruitless and wasn't very likely to be the case anyway after we got going because of the wide variety of birds dying and knowing parasites do not attack such diverse genera.

Q Were you able to complete your work on the birds prior to the Hudson River controversy on PCD's becoming public?

A. I have to realize that carbofuran is one of a group of pesticides that I am concerned with seeing safely used and I do not consider that I am done looking at carbofuran at this point. I have largely completed the research. I had completed the research I felt necessary to come to the conclusion of the carbofuran killing the birds but I have further work that I wish to do on carbofuran and other organo phosphates and carbamate pesticides that I wish to point out. You know, I am not inferring here that the carbofuran is an organo phosphate. It is a carbamate. I mispoke in that sense.

* * *

Motion.

THE COURT: Is there a motion?

MR. ZUYDHOEK: Yes, your Honor. At this time, your Honor, the defendant FMC Corporation moves pursuant to Federal Rules of Civil Procedure, Rule 29, motion for judgment of acquittal after the close of the Government's case based principally upon there being absolutely no proof of any intent attributable to FMC Corporation to harm birds in this action. I think the evidence is clear, your Honor, that the only cause of death is carbofuran poisening. I think the evidence is also clear that the carbofuran got into the lagoon inadvertentally by accident and if there was any motive at all, with respect to carbofuran being in the lagoon it is only a desire by FMC Corporation to protect the health of its employees. Under these circumstances I do not believe that any single count in this indictment should stand and it should be dismissed.

THE COURT: I will deny your motion.

* * *

THE COURT: Ladies and gentlemen, the Government has finished its case and as I explained to you before the burden of proof, the burden of proving guilt beyond a reasonable doubt remains upon the Government. The defendant is not required to offer evidence but may do so and now we are going to hear some witnesses offered by Mr. Zuydhoek.

MR. ZUYDHOEK: Mr. Antonucci, please.

JULIUS ANTONUCCI (13 Freeman Avenue, Middleport, New York), a witness called by and in behalf of the defendant, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION BY MR. ZUYDHOEK:

Q Mr. Antonucci, by whom are you employed?

A FMC Corporation.

Q What is your present position?

A I am warehouse supervisor in charge of shipping and receiving.

Q What was your position in the spring of 1975?

A I was warehouse supervisor and I also had charge of the ground keepers.

Q How long had you had charge of the ground keepers in the spring of 1975?

A How long had I had charge of them?

Q Right.

A Oh, about eight months of that year.

Q How long have you been employed by FMC Corporation?

A Thirty years.

Q Mr. Antonucci, how old are you?

A Fifty-three.

Q Where were you born?

A Middleport, New York.

Q Have you lived in Middleport all your life?

A All my life.

Q How far away from the present manufacturing facility of the FMC Corporation did you live when you were growing up?

A Two or three blocks.

Q Have you had occasion, - or have you had occasion prior to the spring of 1975 to visit the lagoon site at the FMC property?

MR. COHEN: Objection, your Honor. Your Honor, we are getting into events before the - -

THE COURT: Overruled.

MR. COHEN: Indictment.

THE COURT: That is all right. Overruled. Go ahead, Mr. Zuydhoek.

MR. ZUYDHOEK: Could you repeat the question.

THE COURT: I suppose you did. This is on the FMC plant site?

THE WITNESS: Yes, sir.

BY MR. ZUYDHOEK:

Q Mr. Antonucci, the Government has marked Exhibit Number 1. Do you recognize that map in a general way?

A Yes, I do.

Q And when you refer to the lagoon I am referring to this area marked "pond" on the map. Do you know what I mean by that?

A Yes, sir.

Q For what reason would you go to the lagoon site prior to the spring of 1975?

A Well, being in charge of the ground keepers I used to have to see that the grass was cut on the dykes and I used to look for leaks in the dyke.

Q And about how often would you do that or do those things?

A I would make the trip at least once a week.

Q Have you ever seen any, - prior to April of 1975, have you ever seen any dead birds in the vicinity of the lagoon?

MR. COHEN: Objection, your Honor, on the same grounds.

THE COURT: I will overrule the objection.

THE WITNESS: No, I never have.

BY MR. ZUYDHOEK:

Q Have you ever seen any live birds on the pond prior to that time?

A Yes, I have.

Q Prior to April of 1975, did anyone ever report any bird deaths to you as being in charge of the ground keepers?

A No one ever had.

Q When was the first time you learned that there was a bird, - or birds had been dying at the lagoon at the FMC property in Middleport?

A Dr. Towns had called me and said that he heard there was bird deaths or sick around the pond, would I send someone out so I sent Mr. Duvall out.

THE COURT: When was this, Mr. Antonucci?

THE WITNESS: That was in May, I believe.

THE COURT: Of 1975?

THE WITNESS: Of '75.

BY MR. ZUYDHOEK:

Q It was to the best of your recollection, May - -

A To the best of my recollection, May of '75.

Q You don't have any specific note which would indicate when it was or anything like that?

A No, I don't.

Q Do you recall, did you do that the day Dr. Towns told you to do it?

A That same day.

Q What were your instructions to Mr. Duvall?

A I told Mr. Duvall to go out there and have a look and see what he could find.

Q And did he do that the same day you told him to?

A Yes, he did.

Q Was that, - what was done with the bird carcasses that Mr. Duvall found?

A He came in and he told me he had some bird carcasses, "What should I do with them", and I said "Put them in a burlap bag and throw them on the garbage truck".

Q Was that your first experience with exposure to bird carcasses at the FMC plant?

A It was.

Q Is there any facility at the FMC plant in Middleport for disposing of bird carcasses or animal carcasses?

A No, there isn't.

MR. ZUYDHOEK: Thank you very much, Mr. Antonucci.

THE COURT: Mr. Cohen, any questions?

MR. COHEN: No, your Honor.

THE COURT: Next witness.

MR. ZUYDHOEK: I would like to recall Mr. Cole, please, your Honor.

THE COURT: Mr. Cole. The witness was previously sworn. He need not be resworn.

WILLIAM C. COLE, JR., a witness called by and in behalf of the defendant, having been previously duly sworn, resumed the witness stand and testified further as follows:

DIRECT EXAMINATION BY MR. ZUYDHOEK:

Q Mr. Cole, when was the first time you were informed of the possibility that carbofuran was killing the birds in the lagoon?

A. To the best of my recollection, it was May 29, 1975.

Q. And who told you that?

A. Dr. Ward Stone.

Q. Now, I believe your testimony was that you were informed of the bird kill on April 25th, is that correct?

A. April 25th, yes, sir.

Q. Did you ever, prior to April 25th, see any evidence of a bird kill at the lagoon?

A. No, sir.

Q. When you started with the plant in September of 1974, were any reports made to you of bird kills at the FMC Middleport premesis?

A. No, sir, there were none.

Q. Between September 1 of 1974 and April 25, 1975, were you ever informed by anyone at the FMC plant of any bird kill on the premesis?

A. No, sir, I was not.

Q. Mr. Cole, are dithiocarbamates cholinesterase inhibitors?

A. To the best of my knowledge, they are not generally considered so.

Q. And what do you base your answer on?

A. This would be on safety data sheets for industrial hygiene purposes as far as exposure to personnel.

Q. Now, we have had some previous testimony with respect to furadan intoxication. Are you saying that there are also records relative to illness in the dithiocarbamate plants?

A. There have been exposures to personnel working in the dithiocarbamate plant. The only ones, to my recollection, the only one I can recall, would have been rashes caused by one of the particular dithiocarbamates. There have, - to the best of my knowledge, there is no evidence or no record of any intoxications due to dithiocarbamates.

Q. Are intoxications consistent with cholinesterase inhibition?

A. You can have intoxications or toxifications from many reasons. Cholinesterase inhibition is one of these.

MR. ZUYDHOEK: Thank you. No further questions.

THE COURT: Mr. Cohen.

CROSS EXAMINATION BY MR. COHEN:

Q. Mr. Cole, during April of 1975, were you at the large holding lagoon prior to April 25th?

A. Prior to April 25th, I do not recall whether I was there in April, no, sir. I have visited, - I had visited the lagoon sometime, several times between September and April 25th, but I do not recall whether I visited at all any other times in April.

* * *

Motions.

MR. ZUYDHOEK: Your Honor, at this time the defendant renews pursuant to Rule 29 all of the motions it made following the close of the Government's case.

THE COURT: Mr. Zuydhoek and Mr. Cohen, it is my judgment after looking at the briefs and considering the state of law in this area that the Government is correct in that there is no need to prove specific intent. Rather than, Mr. Zuydhoek, as is evident here, we have heard much evidence in this case which I suppose arguably could be brought forward to negate a specific intent. It may also, I suppose, have something to do, some of it, with the conduct of the defendant here and under the circumstances how the jury should consider some of this evidence, some of the steps that were taken to prevent the birds from coming to the lagoon, what steps were taken in the process, the use of caustic to break down the chemical, the substance involved here, all of these things it may be important for me to discuss in the charge and I think the best thing to do is to perhaps give some further thought to how the charge should be made and for us to return tomorrow morning so I can tell you more exactly how I will charge when we meet on Friday.

* * *

THE COURT: In the FMC case we might as well take up the proposed requests to charge. In a formal fashion, we will take up defendant's requests. It seems to me that under the theory which it seems to me applies in this case, that no criminal intent, specific intent is required, that I would refuse to charge defendant's preliminary request to Charge 1 and 2 and 3. I will charge 4 and I refuse to charge 5. I would charge 6 and 7 and refuse to charge Number 8. The Government's requests that are certainly very brief but I think I will read more of the section. It is the burden on the Government to prove as to each count that the substance which killed the birds was made by and came from the FMC plant.

The theory in this case, - I will probably forget this. I will have to write out the word "carbofuran".

MR. COHEN: Yes, your Honor.

THE COURT: The theory of the Government is that carbofuran was the cause of death of the birds. Under that the jury must find as to each count that the carbofuran was the cause. If they find that the Government has not proven that as to each count beyond a reasonable doubt then they must acquit as to that count. If the jury believes that death was caused by any other agency even if it came from the FMC plant, such as ammonia, or what is the other material?

MR. ZUYDHOEK: The product itself is dithiocarbamate. There are some breakdown elements of it including ammonia and zinc.

THE COURT: All right. If they find, for example, that death was caused by dithiocarbamate or ammonia or by sodiumhydroxide or any other materials emitted from the FMC plant then they should acquit.

Is there anything further to be said here? In other words, as far as your evidence in mitigation, the jury have heard all of it but I think I am going to have to tell them that good intentions are not a defense; that if the jury finds here that the steps were taken which did not prevent the deaths of the birds, then they still may convict. As far as this material, certainly it would be appropriate for the Court to consider at the time of sentence but it cannot be considered now and, of course, the jury is not to consider either sentence or sympathy for the birds or for the corporation one way or the other.

MR. ZUYDHOEK: I think the latter is impossible, your Honor.

MR. COHEN: I disagree.

THE COURT: I do not know. I think that your clients here were certainly the most candid and open that I have seen in any case about - -

MR. COHEN: I have to agree with that.

THE COURT: As to what was involved and what occurred and was going on at the scene as far as explaining the processes and what appeared to be the breakdown in the use of the caustic in order to breakdown the carbofuran.

MR. ZUYDHOEK: Your Honor, might I just, so I completely understand, I do understand what you intend to do in terms of the charge. I want to make sure that the Court and Mr. Cohen understand what I intend to do in terms of my summary. I intend to argue, first of all, I intend to state every fact that has been admitted in this case that I consider to be favorable toward my client and I intend to draw certain arguments from that. Now, I fully understand that the Court may, in effect, cut my heart out with respect to those arguments. I don't intend to argue the law. There is no question about that. For example, I do intend to argue moral blamelessness in respect to this matter based on any number of different facts that have been introduced in evidence and - -

THE COURT: Mr. Zuydhoek, I am not going to cut you off in the argument and I do not think I am going to go point by point and say, "Mr. Zuydhoek argued so and so, you are directed that you must ignore that argument". I am not going to do that but I think I am obliged to tell them, however, "That in a general fashion you have heard the argument of steps taken but, ladies and gentlemen, under the law that is not a defense".

MR. ZUYDHOEK: I understand that.

THE COURT: I think in this way the whole picture will be laid out before the jury and then we are back were we were in the late '60's, that the jury then becomes in fact the conscience of the community. You know that there was the argument which now your corporation is making the argument that selective service violators used to make, "It is the function of the jury not only to determine the facts but to determine what the law ought to be" in a particular case.

MR. ZUYDHOEK: I am not going to argue that.

THE COURT: You are not going to go that far but really that is where we almost are.

MR. COHEN: That is an interesting observation.

MR. ZUYDHOEK: Your Honor, I take it that it will be sufficient as far as the requests to charge to object upon the actual charge when it is made.

THE COURT: Yes. That is what you should do, Mr. Zuydhoek, after the end of the charge.

* * *

PROCEEDINGS: July 1, 1977, 11:28 A.M.

APPEARANCES: As before noted.

(Jury present.)

CHARGE OF THE COURT

THE COURT: Everyone is here, I believe, jury and counsel. Ladies and gentlemen, at this time it is my job to try to explain to you the law and it is your responsibility to accept the law as I charge it to you. We are not here, and I think I may have said this to you before and I am going to repeat some things I said to you again, but they are important. We are not here as social reformers. We are not here to determine other cases. That is, what happens in Columbia County. We are not here to judge whether or not the Government should or should not prosecute people who erect tall buildings or who kill birds with automobiles or some other device. We are here only to decide the issues in this particular case under the law as Congress has enacted it.

You will find, and I suppose you find right away that some of things I say in my charge will be at odds with some of the remarks that the attorneys have made about the law in this case, some of the remarks that Mr. Zuydhoek has made and some that Mr. Cohen has made. It is your job to accept the law as I charge it to you.

We have had here and we have permitted because it seemed to me that it was important that you consider and have before you all of the facts possible so that you could make a determination on the issues before you. As you think about the law as I charge it to you you may find that some of the information you have received is not important, it is not material to the issues which will be presented to you in this case. If that is the case then you simply ignore that part of the testimony and you focus on the part of the testimony that does count.

You are directed and must take up each count separately. You will be delivered, - you will receive in the jury room all of the exhibits which have been marked in evidence, the photographs of the birds, the various analyses, chemical analysis, the small chart here which indicated the summary of the connection between the counts and when the various analyses were made, the log numbers which refer to the analysis made, as I recall, by Dr. Stone.

Charge of the Court.

As far as the facts are concerned, whether that was his analysis or the analysis of somebody else, that is for you to determine.

You will be given a verdict sheet and you will simply as you go and consider each count looking at the indictment you will mark the verdict sheet either "guilty" or "not guilty" and your foreman will sign that and when you return to the court to report on your verdict this will be done by handing the verdict sheet to Mr. White. Your vote on each count must be by unanimous vote of the jury agreeing together. That is the requirement in this kind of a case in this court.

It is certainly essential that as to each count before you vote a verdict of guilty that you find the defendant guilty beyond a reasonable doubt. It is well that I explain what reasonable doubt means. Reasonable doubt is a fair doubt based upon reason and common sense and arising from the state of the evidence. I think we can all agree that it is rarely possible to prove anything to an absolute certainty. Proof beyond a reasonable doubt, therefore, is established if the evidence is such as you would be willing to rely and act upon in the most important of your own affairs.

A defendant, however, and that means the defendant FMC Corporation in this case, is not to be convicted on mere suspicion, conjecture or surmise. A reasonable doubt may arise not only from the evidence produced but also from the lack of evidence. Since the burden is upon the prosecution to prove the accused guilty beyond a reasonable doubt of every essential element of the crime charged a defendant has the right to rely upon failure of the prosecution to establish such proof.

A defendant may also rely upon evidence brought out on cross examination of witnesses for the prosecution. The law does not impose upon a defendant the duty of producing any evidence. A reasonable doubt is such a doubt as is based upon reason and appeals to your power of logic. It is a doubt arising out of something tangible in the evidence in the case or something lacking in the case.

If you feel uncertain and not fully convinced that the defendant is guilty of the crime charged and you believe you are acting in a reasonable manner and you believe a reasonable man or woman in a matter of like importance would hesitate to convict because of such a doubt as you have that is a reasonable doubt to the benefit of which the defendant in this case is entitled. If you have such a doubt you must acquit.

The rule that the Government must prove every essential element of a crime beyond a reasonable doubt does not mean that you must believe the testimony of every Government witness as being true beyond a reasonable doubt or that every piece of evidence they have offered is true beyond a reasonable doubt. It means only that the credible evidence as weighed and found by you under my instructions and viewed as a whole must establish every essential element of the crime of the defendant's guilt beyond a reasonable doubt.

There are some other general notions which you should keep in mind. Certainly the fact that we have the Government of the United States here as a party should not make any difference. It is true as Mr. Zuydhoek said that, on the other hand, that the FMC Corporation is to be given the same benefits that you would afford to any individual but as I have emphasized before other cases produce other facts and we are not here to determine whether or not we should convict or not convict a farmer. All I am saying to you is as to the general notions of law you should not in any way discriminate against the defendant corporation in this case.

In order to determine the facts we have all the exhibits which are in evidence. We also have the testimony of all of the witnesses here, the people from FMC, the Government agents and the experts who testified. You should consider their direct and their cross examination and how one witness' testimony compares or does not compare with another witness.

As far as witnesses are concerned the first thing that you will have to determine is whether or not you should consider all of the testimony or whether or not their testimony is discounted, watered down by cross examination or contradicted by other evidence in the case. You should consider, certainly, the witness' interest in the lawsuit one way or another. You should certainly scrutinize the testimony given, the circumstances under which the witness testified and every matter in evidence which tends to indicate whether the witness is worthy of belief. You should consider his intelligence, motive, state of mind, demeanor and manner while on the stand. You should consider any relationship which the witness has to anyone else in the case, to either side of the case; the manner in which he might be affected or not affected by the verdict and the extent to which the witness is supported or contradicted by other evidence.

The mere fact that the witness' testimony is inconsistant or that there are discreptancies in his testimony does not necessarily mean that you must reject his entire testimony out of hand. You must determine whether the inconsistency or discreptancy is the result of innocent miscalculation or whether, on the other hand, it is the result of deliberate falsification.

You are not, of course, in this case or in any other limited to the mere facts that the witness testified to. You are permitted to draw from the facts which you find have been proven to your satisfaction such reasonable inferences as seem justified in the light of your own experience in life. An inference or a deduction or conclusion which reason and common sense lead you to draw from facts which have been proven may be considered by you and any inference, however, which you draw from the evidence must reasonably flow from the evidence and must be based upon facts established in the case.

This is what we commonly call circumstantial evidence. That is, from facts which you are satisfied with that you believe are proven to your satisfaction in the case, that then you can draw certain conclusions. We do this all the time in our daily life, determining whether or not it rained last night, whether it snowed last night and from other facts which we find, whether or not we see footprints in the snow we can conclude that a person walked by. What color coat he was wearing certainly we would not be able to tell from simply looking at the footprints in the snow so that circumstantial evidence alone may be considered, must be considered with caution, must be considered by looking at all the facts and circumstances. Common sense must apply. It follows as you know in a criminal case there is a higher standard of proof. The Government is required to prove guilt beyond a reasonable doubt. That means if there are two reasonable inferences which may be drawn from a state of facts and one tends to point to innocense and the other to guilt then you must accept the inference which points to innocense in a criminal case because the defendant is entitled to that benefit.

You have known here in the case in addition to the various testimony of witnesses we have stipulations between the attorneys. For example, we have one stipulation that the birds which are listed in the indictment are all migratory birds and you may accept that as a fact just as if the witness, an expert got on the stand and went down and described each bird and stated under oath that each bird was in fact a migratory bird. The parties agree, they have stipulated to that particular fact so you may accept that in your consideration.

In this case you should certainly consider the summations which have been made but as I said to you before that you are the individuals who find the facts in the case and if you find that the summations either way did not square with the testimony of the witnesses or the exhibits which have been offered into evidence then you simply may reject the summation, - that part of the summation out of hand. I know I have listened to Mr. Cohen and Mr. Zuydhoek and I know that neither side made any attempt and I think that they both from their point of view very carefully attempted to adhere to the facts but again, ladies and gentlemen, it is not my determination to make on the facts, not my judgment of the facts, it is yours.

Before we get to the particular law which applies here there are one or two other general notions. Certainly the defendant is only on trial for the charges made in the indictment. I am sure Mr. Cohen did, - he agreed with Mr. Zuydhoek we are not here at all to determine the worth or not worth of pesticides. The FMC Corporation is entitled and as we heard from the witnesses, the Government's own witnesses, they believe that this is certainly a beneficial product to manufacture. We are not here as Mr. Zuydhoek determined a few years before in 1974 there were some fish kills in the Jeddo Creek. We are not here at all to determine that and you may not consider that as any evidence at all of any criminal conduct on the part of FMC. They have the right to manufacture the particular products which have been described here and we are not concerned with whether or not they have or have not complied with the various permits. As a matter of fact, we assume that they did comply with the permits because that is not an issue before us.

I think as far as one fact is concerned as Mr. Zuydhoek in his summation discussed briefly the testimony or Dr. Stone where he walked up and down Jeddo Creek you should disregard that testimony. We listened to it and I agree with Mr. Zuydhoek it has nothing at all to do with the issues in the case. We are concerned with what happened at the lagoon and as you recall the water went from the lagoon into the Jeddo Creek nearby but we are not concerned with that. You should just simply disregard his testimony about what his findings were in that area.

When you go to the jury room you will deliberate. That means that you will listen to the reasonable suggestions of your fellow jurors and you will make reasonable conscientious suggestions on your part based upon the facts and based upon the law as I charge it to you. From this mix you arrive at a verdict. During the course of your deliberation if you have any question you should write out the question or if you want to address a question to the Court, I should say, because I know you have a lot of questions and the first place you put your questions to is your fellow jurors but if you believe there comes an impasse, you have to get more direction from the Court, write the question out, give it to the Marshal who will deliver it to me and we will have you back in open court and attempt to answer the question. Do not attempt to get in touch with anyone else except by this process.

Now we will turn to the particular charge which has been placed here. That is Title 16, United States Code, Section 703 which reads in pertinent part, "It shall be unlawful at any time by any means or in any manner to kill any migratory bird". The section is much longer than that but that is the part which we are concerned with in this particular case. As a matter of fact, a more expanded version reads as follows: "It shall be unlawful at any time by any means or in any manner to kill any migratory bird included in the terms of the Convention between the United States, Great Britain, Mexico and Japan for the protection of migratory birds".

The particular treaties or conventions we are concerned with apply to the migratory birds which are listed in the indictment here.

In regard to your approach to this particular case it may be helpful to keep the following in mind. Certain offenses have been created by Congress where the legislators have created penalties to serve as effective means of regulation of certain areas of public welfare. That is the case with this particular legislation. Such legislation dispenses with the conventional requirement for criminal conduct; namely, awareness of wrongdoing and the specific intent to violate the law.

Some of you have been in cases, perhaps bank robberies and other usual type of crime and there we tell you that it is most important before you find the defendant guilty you find that he had the specific intent to rob the bank and to take the money and to keep the money for

for his own use. This particular burden on the Government, the particular requirement is different under a statute such as the Migratory Bird Act. In the public interest the law puts the burden of acting at hazard upon the person otherwise innocent but standing in a responsible relation to a public danger. Here in regard to migratory birds the United States Government has concluded treaties with Great Britain and certain other nations for the protection of migratory birds. The Migratory Bird Act with which we deal was enacted to enforce the provisions and aims of these treaties. The language found in the treaties and the history of the Act itself indicates that the Government's intention was to place a high social value on the protection of migratory birds.

In order to protect this public interest has lead to the creation of this particular statute which prohibits the killing of birds regardless of the means or manner. Therefore, under the law good will and good intention and measures taken to prevent the killing of the birds are not a defense. Therefore, if you find that the birds were killed by the products emitted from the FMC plant then you must return a verdict of guilty but keep in mind as I told you before you must take up each count separately.

Furthermore, the theory of the Government in this case is that the birds were killed by a particular substance and you must find as to each bird that that bird was killed by that particular substance called here either furidan or as I recall carbofuran.

If you find that the death of the birds were caused by another substance or you find that you can not tell one way or another whether the birds were killed by carbofuran, you just can not tell one way or another, then, of course, your verdict must be one of not guilty so that the essential elements which the Government is required to prove in order to establish the offense charged in the indictment, and this must be beyond a reasonable doubt, is that a bird in a particular count was a migratory bird and that the FMC Corporation killed the particular bird as set forth in the count of the indictment.

The Government in this case does not have to prove that the defendant intended to kill the birds. You may convict the corporation even if you find that the killing of the birds was accidental or unintentional provided that you find that the FMC.Corporation did kill the birds as charged in the indictment and as I have already charged you you must find that the deaths were from carbofuran.

You have heard the testimony about other substances here, other causes of death. It is up to the Government to rule out as to the particular bird that death was not caused by disease, was not caused by amonia, not caused by other toxic substances emitted from the plant.

Certainly as far as FMC Corporation is concerned the protection of its workers is certainly an important consideration but as far as a defense to the particular charge in this case it is not a defense. The corporation must do both. They must protect their workers and they must make sure that migratory birds are not killed by actions taken by either their employees or through the substances which are emitted from their plant.

We have heard a good deal of testimony about steps taken to prevent the killing of the birds. You may find, of course, that some of the steps were effective and that some of the birds which were killed were not killed because of the carbofuran and if you find that that is so then your verdict as to that count must be not guilty. Furthermore, as far as you have heard the argument of Mr. Zuydhoek about the zon guns. This is up to you to determine. I should say to you he talked about Dr. Reilly's testimony about the zon guns but as far as this part of the case is concerned you must keep in mind not only Dr. Reilly's testimony but the testimony of all of the witnesses.

You certainly can apply all of the other testimony in the case as to the, - and your own experiences in life as to the use of the zon guns but if you find that the zon guns did in fact attract the birds and the zon guns were there because the Government suggested that they be put there then as to those counts, and Mr. Zuydhoek enumerated them, - I believe the 17 last counts in the indictment then it is up to you to determine whether or not this was such an intervening cause which would excuse the FMC Corporation from liability even if you find that the deaths were caused by the carbofuran but I amphasize in considering this part of the case you should take into account all of the testimony.

At this time, ladies and gentlemen, I will ask you to step into the corridor for a minute while I listen to any exceptions made to the charge and any request for further charge.

(Jury escorted from the court room.)

THE COURT: Mr. Cohen, do you have any further requests or any exceptions to the charge?

MR. COHEN: Your Honor, I would like to except to that portion of the charge which limits the jury to only considering carbofuran as the cause of death of the birds. I have no additional requests.

THE COURT: All right. I will refuse to make any change in the charge in that regard. Mr. Zuydhoek.

MR. ZUYDHOEK: Yes, your Honor, I have several objections first.

THE COURT: Yes.

MR. ZUYDHOEK: Just let me start off by saying all of my objections to the charge relate basically to the issue of intent under the statute but more appropriately and the reason for my objections in this regard are that intent should be implied into the statute, read into the statute by implication. More appropriately in that regard, your Honor, I refer to the portion of the charge concerning the public welfare nature of the particular crime, particular statute.

I also object to that portion of the charge where your Honor referred to the history and language of the statute and high social value for the protection of birds as bearing on the issue of intent and that portion of your charge respecting the fact that good will, good intent and measure to prevent killing are not a defense as well as to that portion of your charge where your Honor mentioned that accident is not a defense to the crime charged as well as to that portion of your charge where it was mentioned that protection of workers was not a defense to the crime charged. Those are my objections, your Honor.

THE COURT: All right, Mr. Zuydhoek, thank you. I will not change my charge in that regard.

MR. COHEN: If I may, your Honor, I would like to make a request. I would like the Government's request Number 2 read to the jury with respect to multiple birds charged in a single count.

THE COURT: Yes, I should tell them that. Very well. Anything else, Mr. Zuydhoek?

MR. ZUYDHOEK: Just specifically, your Honor, although your Honor has already refused certain of the requests made, I take it that I need not reenumerate them at this time as specific requests.

THE COURT: The requests that I have ruled upon?

MR. ZUYDHOEK: Right.

THE COURT: No. That is clear, Mr. Zuydhoek. We were able to take care of them one by one.

MR. ZUYDHOEK: As I understood your Honor's previous ruling I though you were going to charge Number 6 in my additional requests and I am not sure that you have.

MR. COHEN: I believe that you have, your Honor.

THE COURT: I thought I did but I will say that to them again.

MR. ZUYDHOEK: I do believe your Honor has charged the substance of Number 7 and I will not rerequest that.

THE COURT: All right.

(Jury returns to the court room.)

Further Charge of the Court.

THE COURT: Ladies and gentlemen, just one or two other things.

I think I told you but certainly I should emphasize again that what the verdict should be is your sole and exclusive responsibility dependent upon the facts as you find and the law as I charge it to you.

You will note in the indictment there are some counts where there are more than one bird charged in the count. For example, 2, twelve. It is not necessary that the Government prove exactly twelve birds. That is given to you as an approximate number. Count 32, for example, five Least Sandpipers, again it is not required that the Government prove five but only approximately that number.

When you go to the jury room it is a good idea to pick a foreman, someone who can chair your deliberations and also be the person who may communicate with the Court if there is a problem.

At this time, Mr. Hopton, I will excuse you from your particular function in this case because we can only go ahead with a jury of 12. We are going to select some further juries on

July 11th. Do you have anything planned in the remainder of July which may interfere with your service?

ALTERNATE JUROR: I don't think so.

THE COURT: Then in that case if you come back July 11th we will pick some additional juries. Thank you again.

(Alternate juror excused.)

THE COURT: Will the Marshals step up to be sworn, please.

(One male and one female Deputy United States Marshal sworn as custodians of the jury.)

THE COURT: All right. Ladies and gentlemen, you may now go with the Marshal and begin your deliberations. Attorneys step up with Mr. White to make sure that these are the exhibits which should go to the jury.

(Jury retires to commence its deliberation at 12:12 P.M.)

THE COURT: Mr. Cohen.

MR. COHEN: Your Honor, there are the stipulations. I don't know how necessary they are. We have the stipulations. I don't think they are that necessary. We did enter into stipulations on the chain of custody.

THE COURT: It is part of the record. I think they ought to go. Mr. Zuydhoek, any particular reason why it should not go?

MR. ZUYDHOEK: Well, your Honor, the stipulations relate only to chain of custody.

THE COURT: Nobody argued about that.

MR. ZUYDHOEK: That's right. There is no issue except it would take the jury forever to read through it.

THE COURT: All right. We will just put them to one side then and I do not think this will be a consideration of the jury anyway.

MR. COHEN: If they have any questions, your Honor, about the chain of custody we can send them down.

THE COURT: Very well.

(Recess taken at 12:15 P.M. pending deliberation of the jury.)

* * * * *

Note From Jury.

PROCEEDINGS: After recess, 2:35 P.M.

APPEARANCES: As before noted.

(Jury returns to the court room.)

THE COURT: Ladies and gentlemen, I have a note from you which reads, "In charging the law some jurors were not clear as to whether or not FMC must be convicted whether or not polluting was intentional or accidental". That is all one sentence.

This is sort of common, ladies and gentlemen, I charge and immediately there is a question in mind for the jury so I am not surprised.

Whether or not this furidan as I have explained to you, you must find that furidan caused the deaths. You have heard the measures taken to prevent the furidan from getting into the pond. Whether it was there or not, that is for you to determine. Whether that caused the death of the individual birds, that is for you to determine but whether it was intentional, - that is, whether they intended to pump the material into the pond or whether it was accidental if it did come from the plant of the FMC Corporation and you are convinced of that fact beyond a reasonable doubt then it would be your obligation to find a verdict of guilty as to that count.

It is up to you to determine the facts but preventative measures taken which did not prevent substance from being emitted is no excuse.

All right. I would think you would be able to go back and continue your deliberation. All right. You may go out with the Marshal and continue your deliberation.

(Jury retires at 2:40 P.M.)

THE COURT: Mr. Zuydhoek, was there something?

MR. ZUYDHOEK: Just for record purposes I will object to the subsequent charge on the same basis and for the same grounds I objected to the previous charge on the question of intent.

THE COURT: Very well.

(Recess taken pending deliberation of the jury at 2:42 P.M.)

* * * * *

Government's Exhibit 11.

FMC Corporation

Agricultural Chemical Division
100 Niagara Street
Middleport New York 14105
(716) 735 3761 Twx 710 267 1790
Cable Fmcacdintl

FMC

June 11, 1975

Mr. Kenneth Cohen
Assistant U.S. Attorney
United States Justice Department
Room 502
U.S. Court House
68 Court Street
Buffalo, New York 14202

Dear Mr. Cohen:

As you requested through our attorney, Mr. David Landgraf, the following are FMC's analyses of water samples taken on 5/13/75 and 5/29/75.

Date	Sample Location	ppm Carbofuran	ppm NH_3	ppm Zn
5/13/75	Pond I - 10' S. of pipe	93.2	8515	41
5/13/75	Pond II - N.W. corner	82.7	8174	39
5/13/75	Pond III - S.W. corner	84.8	8174	37
5/13/75	Pond IV - N.E. corner	73.2	5960	38
5/13/75	Pond V - Middle South	74.3	10218	41
5/29/75	Pond - N.E. corner	76.6	-	-
5/29/75	Pond - East side	73.6	-	-

Split samples taken on 5/15/75 were not analyzed for carbofuran. Seeing the range of analyses. I would expect them to have been about the same as the 5/13 samples.

William C Cole Jr
WILLIAM C. COLE, JR.
Plant Manager

WCC:kah

Government's Exhibit 15.

FMC Corporation

Agricultural Chemical Division
100 Niagara Street
Middleport New York 14105
(716) 735 3761 Twx 710 267 1790
Cable Fmcacdintl

FMC

July 7, 1975

Mr. Nolan A. Curry
Acting Chief
Chemical Systems Section
Division of Pure Waters
New York State Department
of Environmental Conservation
50 Wolf Road
Albany, New York 12233

Dear Mr. Curry:

On April 23, 1975, a bird kill was reported to have occurred in the vicinity of the process wastewater holding lagoon located on the northeast corner of FMC's Middleport plant site. Subsequent to that time, some further, less extensive kills have been found to have occurred in the same location. Extensive investigation by DEC, the New York State Department of Health, EPA, and the U. S. Department of the Interior, as well as by our own technical department, reveals that the presence of carbofuran in the lagoon water is a possible cause. Analyses of samples taken on May 13 showed 70-90 ppm carbofuran in the lagoon water. Samples taken on May 29 showed similar lagoon concentrations. On May 29, samples were also taken of effluent from the outfall, 001, which consisted of controlled discharge from the lagoon and surface water. These outfall samples showed 40 ppm carbofuran. The underground discharge valve from the lagoon was then shut off and was covered.

During the time when carbofuran was found in the effluent from outfall 001, we were discharging at a very low rate in order to control the ammonia concentration in the receiving stream to 3-5 ppm, in accordance with our controlled discharge program. Since the ammonia level in the pond is 8,000-10,000 ppm, our process discharge was diluted by a factor of 1,000-2,000 in the receiving stream, indicating a maximum stream carbofuran level of .04 ppm. This level is lower by a factor of 5 than the reported toxic limit for carbofuran. We have not observed any adverse effect upon any aquatic life in the receiving stream.

Government's Exhibit 15.

While we do not believe that this incident falls under any of the reporting requirements of our NPDES permit, we want to inform you of the circumstances that apparently led to this situation and the actions which we plan to take to correct it and to avoid any future reoccurrence. It has not been our intention to discharge carbofuran from our outfall, and it is not our intention to do so in the future.

Circumstances Leading to Condition

In our carbofuran department any spills must be cleaned up immediately because of the toxic nature of the material. Dry spills are usually vacummed first and then washed down with water. The water goes into a sump, where caustic is added to destroy the carbofuran. When the sump is filled, it is pumped to the wastewater holding lagoon.

Our research studies showed that this method of treatment is effective in chemically degrading the carbofuran to relatively non-toxic breakdown products. However, over the last few months, increased emphasis on reducing personnel exposure has led to a large increase in wash down frequency. This increase meant that contact time with the caustic was reduced and apparently hydrolysis was incomplete before the sump material was pumped to the pond. Accordingly, the concentration of carbofuran in the waste water lagoon gradually built up to the toxic level.

Proposed Solution

We are presently working on eliminating the source of the problem in the production facility, as well as studying ways of treating the contaminated water in the pond.

a) Production Facility

Since wash down must still be employed to minimize personnel exposure, an internal recycle system for wash water will be installed, as per the attached sketch. Contaminated wash water will be filtered and then either recycled to the process or carbon treated and reused in the department as wash down water. Engineering on this project is underway and construction is

Government's Exhibit 15.

scheduled to begin shortly.

b) Process Water Lagoon

Reducing the toxicity of the contents of the lagoon is a very difficult problem. At the present time, we are attempting to prevent further bird kills by patrolling the lagoon area during all daylight hours, and firing blanks to scare the birds away. This, of course, is only a short term solution.

As our source abatement program proceeds, the carbofuran concentration in the lagoon will begin to decrease due both to hydrolysis in the lagoon and to dilution. (Since we are not discharging from the lagoon, any process water that is added will reduce the carbofuran concentration.)

In addition, we are studying a number of schemes to detoxify the waste water in the lagoon prior to release. The addition of NaOh will of course destroy the carbofuran; however, this method leads to difficulties due to the presence of ammonia. Carbon treatment is also being considered to remove the carbofuran from the waste water. By the end of the summer, we hope to have an acceptable treatment process defined to prevent the release of carbofuran from the lagoon into Jeddo Creek.

As you know, this process lagoon is scheduled to be eliminated by July 1977. We certainly believe that the action we are taking will prevent the reoccurrences of the recent bird kill between now and that date.

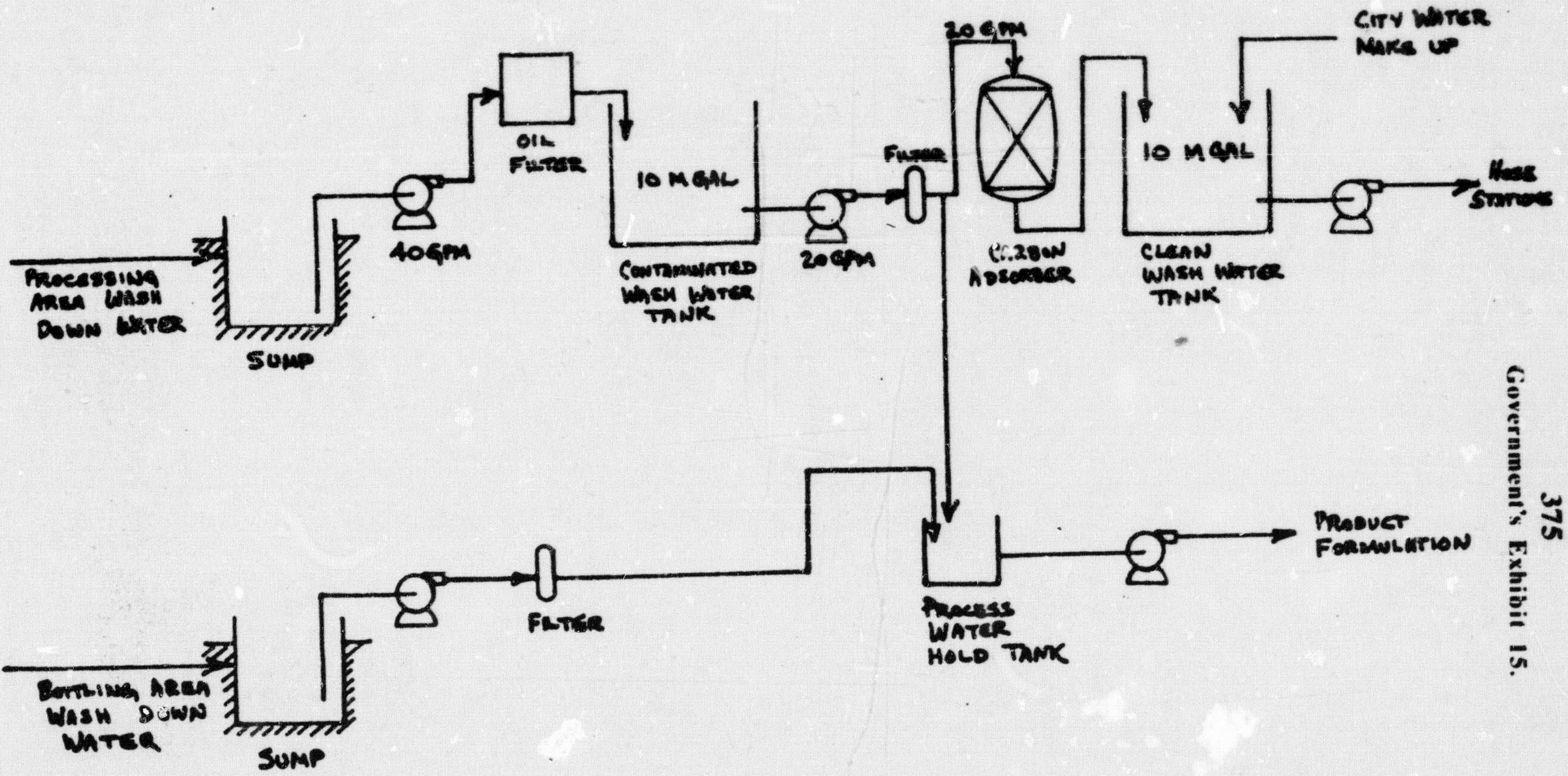
Yours truly,

W. C. Cole, Jr.

William C. Cole, Jr.
Plant Manager

jg

cc: Messrs. Frisco (EPA-Reg. II)
McMahon (DEC - Buffalo)
Van Epps (DEC - Buffalo)
Ms. Fodor (EPA - Reg. II)


PROCESSING AREA WASH DOWN WATER
SUMP
40GPM
OIL FILTER
10 M GAL
CONTAMINATED WASH WATER TANK
20GPM
FILTER
20GPM
CARBON ADSORBER
10 M GAL
CLEAN WASH WATER TANK
CITY WATER MAKE UP
HOSE STATIONS
BOTTLING AREA WASH DOWN WATER
SUMP
FILTER
PROCESS WATER HOLD TANK
PRODUCT FORMULATION

375
Government's Exhibit 15.

FMC
FURADAN DEPARTMENT
WASH WATER SYSTEM
7/7/75 WCC